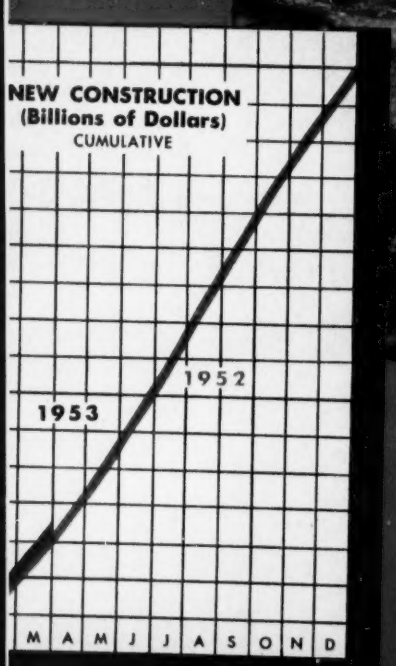
The CONSTRUCTOR

OFFICIAL PUBLICATION OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA

Volume XXXV APRIL 1953 Number 4

- BUILDINGS
- HIGHWAYS
- AIRPORTS
- RAILROADS
- PUBLIC WORKS



Contractors See Sharp Competition Ahead—21
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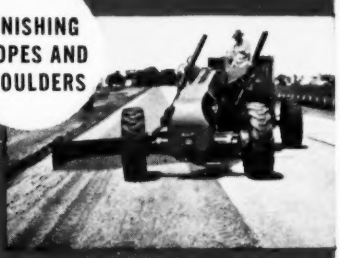
GRADING SLOPES

MOVING WINDROWS

FINISHING SLOPES AND SHOULDERS



MIXING BLACKTOP

you've got to

Swing that Rear-End

for TOP performance

Top performance, no matter what the footing . . . no matter what the job.

When a ditch is wet, rear steer places the rear truck on the shoulder where the going is good.

When the load is heavy, rear steer places the rear drivers so that they push behind the toe of the blade, while the front drivers pull ahead of the heel. More material is moved, farther and faster.

When there's finishing to be done, rear steer moves the rear wheels off to the side where they won't leave tire marks.

Yes, on job after job, right straight through the year, you've got to SWING THAT REAR-END to get maximum results, and only an Austin-Western Power Grader can swing its rear-end.

. . . handling many other jobs

Austin-Western

Power Graders

Road Rollers · Motor Sweepers

BALDWIN BLH LIMA-HAMILTON

Construction Equipment Division

Manufactured by

AUSTIN-WESTERN COMPANY

Subsidiary of Baldwin-Lima-Hamilton Corporation

AURORA, ILLINOIS, U.S.A.

What kind of tires can your jobs afford ?

THE kind that only great resources and great practical experience can build. The kind that are specifically designed for your types of jobs and equipment. The kind that are built *sparing nothing* to bring you the greatest traction or flotation, the greatest durability, the longest wear.

In short, the kind of tires that will keep your jobs rolling—save you time and money in every way!

No truly cost-wise operator can afford a lesser tire—and that's why more tons, the world over, are hauled on Goodyears than on any other make!

It stands to reason that Goodyear, who has built more tires for more purposes than anyone else on earth, can help cut *your* operating costs, too!

Goodyear, Truck Tire Department,
Akron 16, Ohio.

FOR EACH JOB, THERE'S A COST-CUTTING GOODYEAR TIRE!

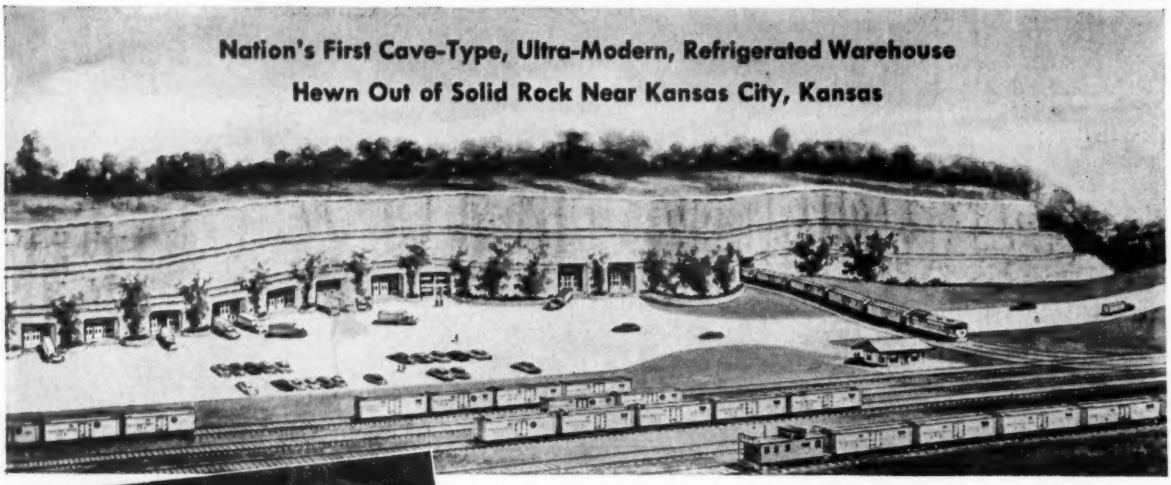
Sure-Grip, All-Weather– T.M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

GOODYEAR

We think you'll like "THE GREATEST STORY EVER TOLD"— every Sunday—ABC Radio Network—THE GOODYEAR TELEVISION PLAYHOUSE—every other Sunday—NBC TV Network

WAREHOUSING Gibraltar Style

Nation's First Cave-Type, Ultra-Modern, Refrigerated Warehouse
Hewn Out of Solid Rock Near Kansas City, Kansas

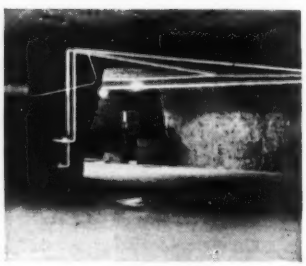


● Hewn out of limestone rock, with 72-ft.-thick roof, 40-ft. spans between solid-rock columns, and entry through a vertical ledge of stone, NATURAL STORAGE COMPANY's warehouse at Coldspur, Kansas, on the Union Pacific, 17 miles west of Kansas City, is a Gibraltar-like answer to modern-age storage problems.

This previously-mined area of a limestone deposit provides ideal storage conditions, safely above flood, floors at ground level, no limit on floor loads, with 150,000 sq. ft. and 2½-million cu. ft. of storage space, and plans for expansion to ten-million cubic feet.

Suggesting the utilization of many other subterranean mined areas for safe storage of all kinds, this cave-type warehouse has year-around 55° F. temperature, serving as natural insulation for added refrigeration to chill or freeze meats, vegetables and fruits, in separate rooms.

Finishing quality touch are heavy-duty floors of Lone Star Cement concrete, 5,000 cu. yds. to date, placed on the rock base—man-made stone with the strength and durability for which Lone Star Cements are noted, on the basis of outstanding nation-wide performance.



NATURAL STORAGE COMPANY, INC. WAREHOUSE
Coldspur, Kansas

Floor Construction:
JOHN ROHRER CONTRACTING COMPANY

Ready-Mix Lone Star Concrete:
CONCRETE MATERIALS, INC.
both of Kansas City, Kansas

LONE STAR CEMENTS COVER
THE ENTIRE CONSTRUCTION FIELD

LONE STAR CEMENT CORPORATION

Offices: ABILENE, TEX. • ALBANY, N.Y. • BETHLEHEM, PA. • BIRMINGHAM
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LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 18 MODERN MILLS, 129,000,000 SACKS ANNUAL CAPACITY

The CONSTRUCTOR

BUILDINGS • HIGHWAYS • AIRPORTS • RAILROADS • PUBLIC WORKS

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COVER

The New York Thruway, a 427-mi. superhighway between New York City and Buffalo, is well under way with only 98 mi. still to be advertised for bids. The four-lane route is laid out on a right-of-way that is up to 250 ft. wide. Shown on this month's cover is part of a 150-mi. toll section between Batavia and Utica to be opened late this year.

—Photo courtesy of Fairchild Aerial Surveys

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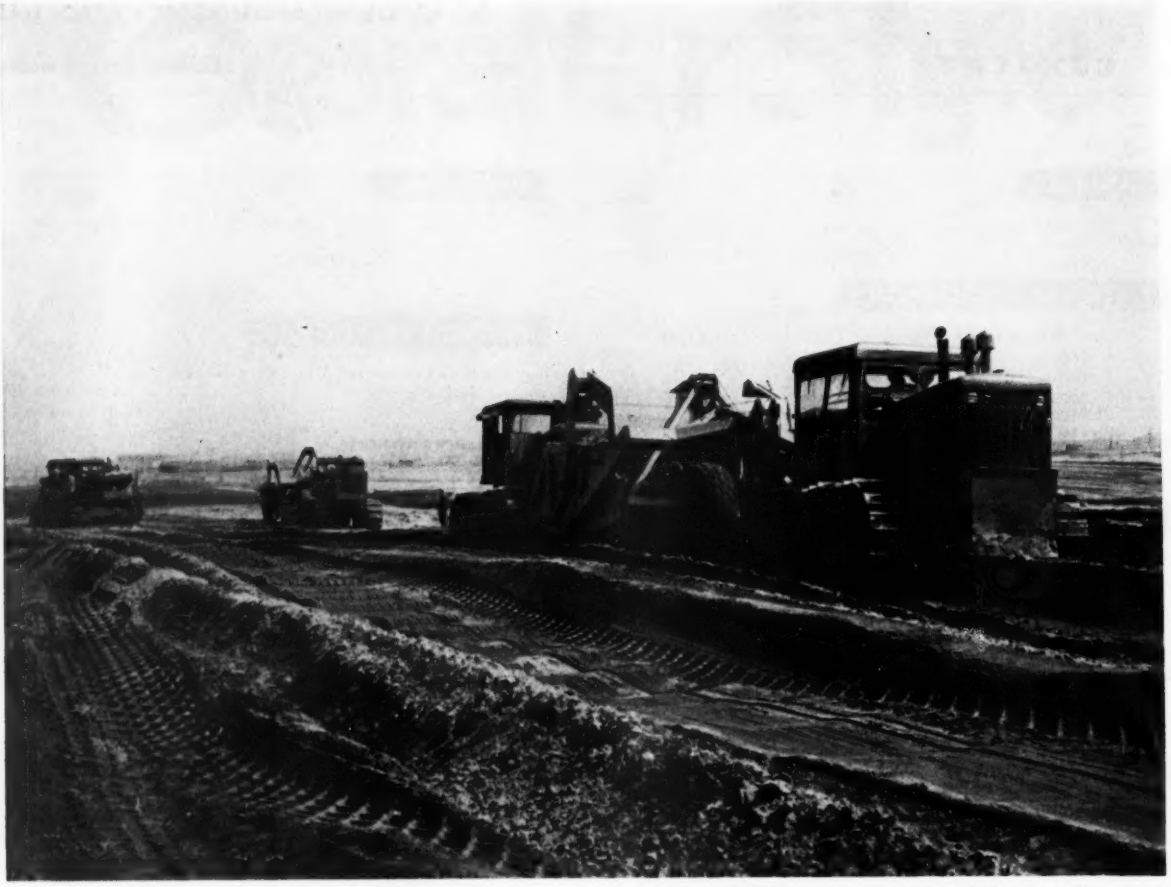

Grading and filling new runway at Newark Airport in New Jersey

JOB-ENGINEERED FINANCE PLANS

Here you see part of the grading and filling operation in progress on the new aircraft runway at Newark Airport in New Jersey. The Union Building & Construction Corporation handled the job—a $2,750,000 project.

Financing for equipment and working capital needs was supplied by C.I.T. Corporation through a capital loan made to Union Building & Construction Corporation—another case where creative financing opened broader and more profitable operating horizons.

Does your work schedule call for an increase in liquid working funds? Need new equipment? A C.I.T. Corporation "job-engineered" finance plan can solve your funding or finance problems. For swift assistance—write or call one of the offices listed below.

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INDUSTRIAL AND EQUIPMENT FINANCING

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PHILADELPHIA · SAN FRANCISCO · PORTLAND · LOS ANGELES · HOUSTON

A.G.C. survey of current conditions in the construction industry shows that with the removal of government controls and the general availability of materials, general contractors are experiencing a period of abundant work on the one hand and intense competition, sharp bidding and lower prices for completed construction jobs on the other. Prices of materials are expected to be relatively stable with increases in some lines, and there is evidence that labor's demand for wage raises, including fringe benefits in some areas, will be strongly resisted by employers, according to reports. The survey, covering prospects for the next six months, was made among the A.G.C.'s 80 national directors and 122 chapters. (Page 21)

A.G.C. 34th convention, held March 23-26 in Miami, was the biggest in history, with over 1,500 in attendance, representing leading contractors from all parts of the country. Hard work on the part of members was combined with an outstanding entertainment program provided for by chapters in District 10, comprising the states of Florida, Georgia, North and South Carolina, and Virginia; the South Florida Chapter, and the General Convention Committee. (Page 23)

New officers for 1953 installed by A.G.C. are C. P. Street, Charlotte, N. C., president, succeeding Arthur S. Horner, Denver; John McLeod, Paramount, Calif., vice president; and William Muirhead, Durham, N. C., re-elected secretary-treasurer. (Page 31)

A.G.C.'s busiest year in accomplishing productive work within the construction industry was described in a comprehensive annual report to the convention by Managing Director H. E. Foreman, who added, "The removal of emergency controls over the industry and a fresh concept of governmental functions by the new Administration provides a great opportunity to the association for constructive action on projects of long-range benefit to its members, to the industry generally, to the government, and to the public." (Page 65).

Positive actions taken by the convention include recommendations for: Expansion of A.G.C. accident prevention program, the allowance for government and contracting organizations mobilized for defense work to continue administration of federal and federal-aid construction, a realistic consideration of prevailing wage scales and adherence to traditional differentials between major construction classifications in pre-determining minimum wages, strict observance of wage stabilization policies by federal agencies doing their own construction, legislation offsetting the Wunderlich Supreme Court decision, a uniform procedure for control and inspection of projects in order to avoid delays in municipal and other public works construction, adequate salaries for engineers "Commensurate with their responsibilities and with salaries paid by private industry," the awarding of public works contracts to the lowest responsible bidder after public advertisement, the keeping of comprehensive and accurate cost records by federal agencies using their own construction forces, and increasing federal-aid returns to states to not less than the total amount of funds collected in taxes from highway users. (Page 32)

The convention opposed any federal law impairing or superseding labor legislation by the several states, S. 848, or similar legislation for a revised federal contract procedure which would cause unnecessary government regulation of construction industry and increase cost of public works projects, the diversion to other purposes of tax funds collected from highway users, any legislation for supervision of industrial safety regulations, and reaffirmed A.G.C.'s position against valley authority type of legislation seen as a threat to our private enterprise system. (Pages 32-33)

New materials control system, limited to assuring deliveries of enough steel, copper and aluminum for the national defense, would replace the Controlled Materials Plan July 1. Called Defense Materials System, the new allotment setup would provide a smooth change-over from the total materials control to limited defense materials control. (Note: Because of the limited number of contractors affected, A.G.C. national office will *not* send out copies of the regulation to members automatically, as is usual, if the DMS is approved.)

Administration killed former President Truman's budget request that Congress appropriate $30 million in 1954 for federal aid to new airport construction, Under Secretary of Commerce Robert B. Murray, Jr., revealed last month. The requested funds were eliminated to give "sufficient time" for a full review of the federal-aid airport program; he said.

Federal Housing Chief Albert M. Cole last month asked Congress to permit the government to start construction of 35,000 low-rent public housing units in fiscal 1954, thereby continuing the program level last authorized by Congress. Cole, who has opposed public housing, said that he agreed with a recent White House decision to continue the program at its present level for the time being. President Truman's last budget asked for 75,000 units in 1954.

Public Roads Commissioner Thomas H. MacDonald retired this month after serving as head of that agency for 34 years since its inception. The 72-year-old official has been responsible for administration of federal highway funds since the beginning of federal participation in highway matters on a national scale. (Page 38)

A.G.C. firms and chapters, over 200 strong, were named last month at the Miami convention to receive awards for compiling outstanding safety records in their particular fields. This marked increase from 120 similar awards presented to winners last year assures association officials that the A.G.C. safety program is saving lives of men and reducing over-all construction costs. (Page 61)

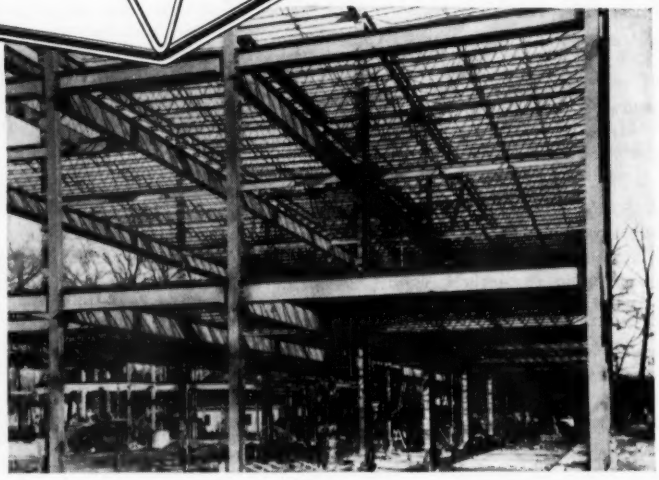
Federal safety aid bill, identical to one re-introduced in the Senate recently by Sen. James E. Murray (D. Mont.) was brought up in the House last month by Representative Cleveland M. Bailey (D. W. Va.). Mr. Bailey's bill, H. R. 4145, would give federal aid to states enforcing industrial safety laws. The A.G.C. at the Miami convention opposed such legislation, stating that industry, not government, should promote job safety.

Future meetings of the A.G.C. will be the Mid-Year Board Meeting, Edgewater Beach Hotel, Chicago, Sept. 14-16, 1953 and the 35th annual convention, Hotel Statler, Los Angeles, March 1-4, 1954.

Wood County Hospital, Bowling Green, Ohio.
Strong, Strong & Strong,
Lima, Ohio, Architects.
Steinle-Wolfe, Fremont, Ohio, Contractors

Wood County Hospital...

where Truscon "O-T" Steel Joists Make Floors Light and Fire-Resistant



Light? Yes. The light weight of Truscon "O-T" Steel Joist construction lessens time and labor required for erection. It saves materials in supporting framework and foundations.

Strong, too. Wide, specially-formed top and bottom chord members impart stiffness, and keep joists true to line. Continuous steel web member is electrically welded to the chords.

Fire-resistant? Yes. Tests prove that ¾-inch of cement or gypsum ceiling plaster on metal lath protects Truscon "O-T" Open Truss Steel Joist construction against high temperatures. In fact, the majority of insurance rating bureaus recognize the merits of this construction and give it a first-class fireproof classification.

Investigate this lower-cost-per-square-foot construction that assures adequate strength and safety. See Sweet's for complete specifications on Truscon "O-T" Steel Joists. Write us for literature describing the complete line of Truscon Steel Building Products.

Truscon "O-T" Steel Joist construction for floors and roof. Underslung design of the bearing means maximum headroom under supporting girders. Open web allows passage of pipes and conduit in any direction.

TRUSCON STEEL DIVISION
REPUBLIC STEEL CORPORATION
1100 ALBERT STREET, YOUNGSTOWN 1, OHIO

TRUSCON® a name you can **build** on

A Series of Graphs Outlining the Construction Trend

Compiled by The Associated General Contractors of America

TREND OF CONSTRUCTION COSTS

The average of construction costs in the principal construction centers of the United States for March stands at Index Number 399, according to the A.G.C. Index. The cost figure for March 1952 was 378. The 1913 average equals 100.

WAGE AND MATERIAL PRICE TRENDS

The average of wages in the principal construction centers of the United States stands at 557 for March. One year ago the average stood at 512. The average prices paid by contractors for basic construction materials for March stand at Index Number 294. The average a year ago stood at 290. The 1913 average, again, equals 100.

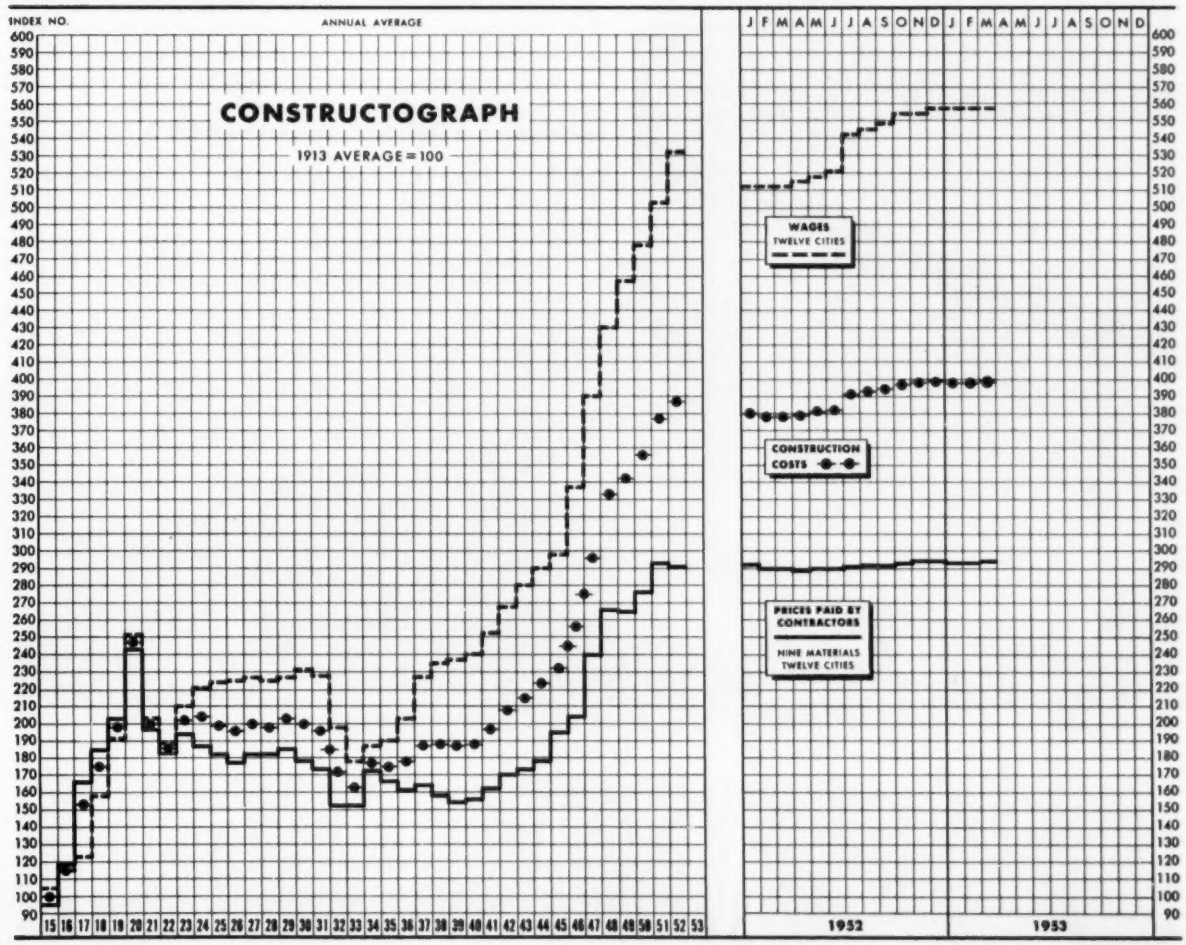
CONTRACT AWARDS IN 37 STATES

The volume of contracts awarded during February (Index Number 194, based on 1936-38) is a decrease of 10 points from January and an increase of 17 points from February 1952. (F. W. Dodge Corp.)

REVENUE FREIGHT LOADINGS

Revenue freight loaded during the first 12 weeks of 1953 totaled 8,169,171 cars. For the same period in 1952, loadings amounted to 8,614,905 cars. This represents a decrease of 5%.

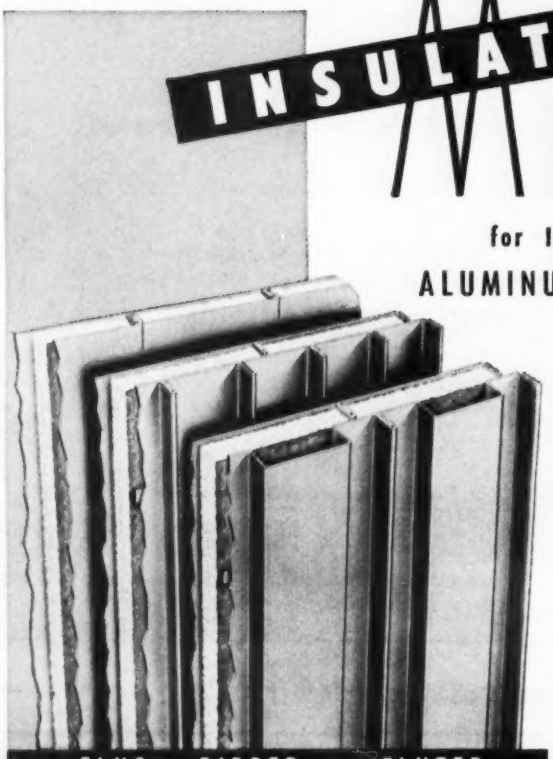
● Wage, Material Price and Construction Cost Trends



INSULATED METAL WALLS

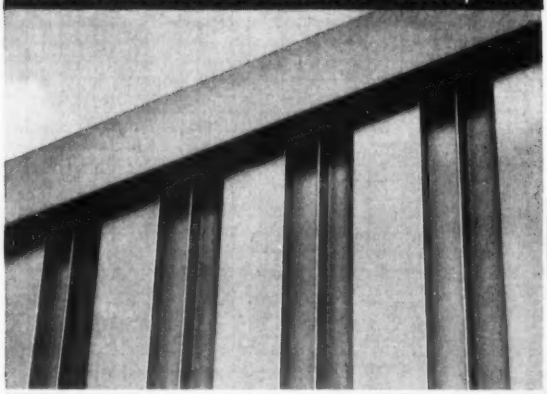
for INDUSTRIAL and COMMERCIAL BUILDINGS

ALUMINUM, STAINLESS or GALVANIZED STEEL



FLUSH, RIBBED, or FLUTED

Over-all "U" Factor of Various Types is Equivalent to or Better than Conventional 16" Masonry Wall

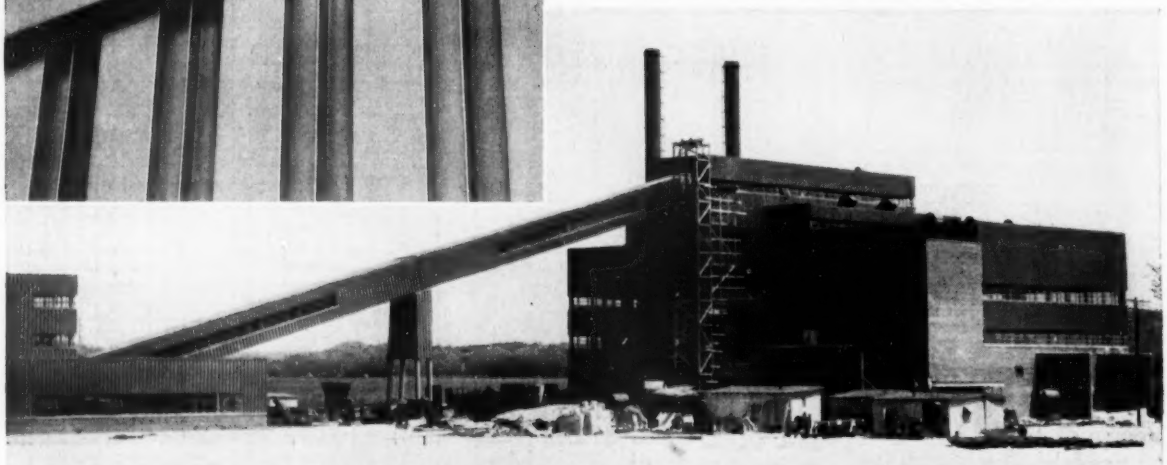


Today, Insulated Metal Walls are saving construction dollars in both material and labor costs . . . they are reducing construction time through rapid erection—even in periods of extremely low temperature. This amazingly light weight construction, with an over-all "U" Factor superior to a conventional masonry wall, permits further economies in the building frame or supporting structure. Architects, as well as owners and management groups throughout the country are revising their concept of permanent exterior wall construction. In the powerhouse illustrated below, Mahon Fluted Type, Field Constructed Insulated Metal Walls with galvanized steel exterior plates were employed to good advantage for virtually all exterior walls. Mahon Insulated Metal Walls are available in the three exterior patterns shown at left . . . each lends itself to individual architectural expression in building design. The Mahon "Field Constructed" Fluted or Ribbed Wall can be erected up to sixty feet in height without horizontal joints—a feature of Mahon Walls which is particularly desirable in powerhouses, steam plants, warehouses, auditoriums, or other buildings where high expanses of unbroken wall surface are common. See Sweet's Files for complete information including Specifications, or write for Catalog No. B-53-B.

THE R. C. MAHON COMPANY

Detroit 34, Mich. • Chicago 4, Ill. • Representatives in all Principal Cities

Manufacturers of Insulated Metal Walls; Steel Deck for Roofs, Partitions, and Permanent Concrete Floor Forms; Rolling Steel Doors, Grilles and Underwriters' Labeled Rolling Steel Doors and Fire Shutters.



MAHON

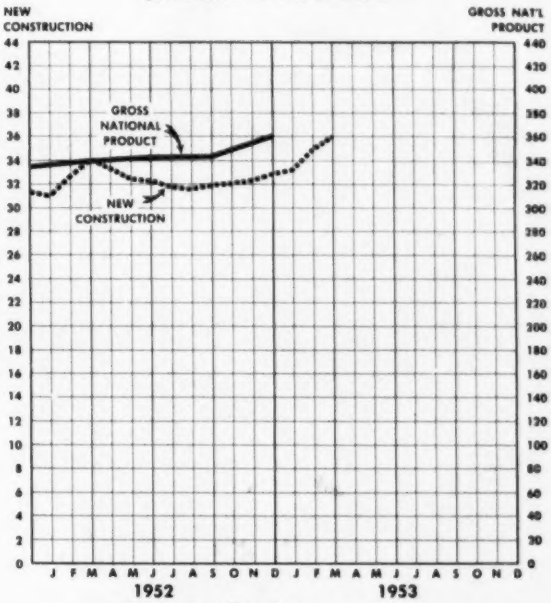
● TOTAL Construction compared with Gross National Product

(BILLIONS OF DOLLARS

DATA SUPPLIED BY DEPT. OF COMMERCE

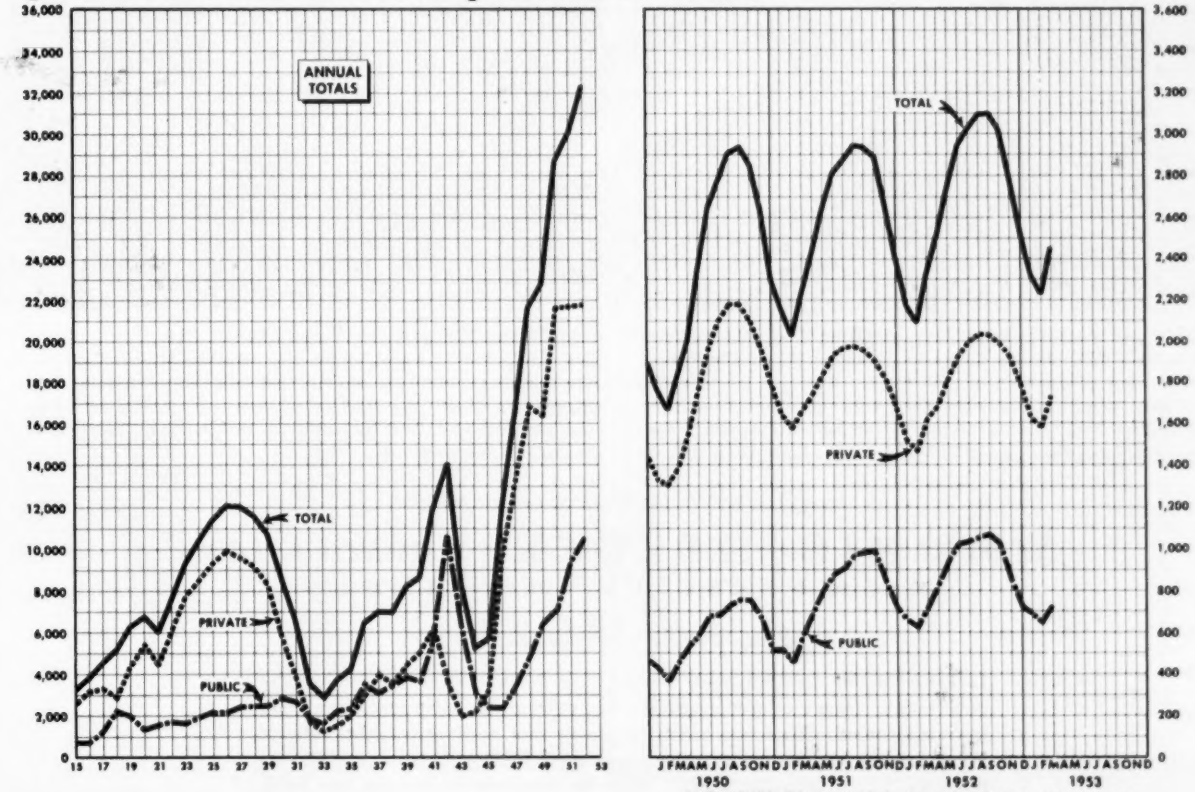
● NEW Construction Compared with Gross National Product*

(BILLIONS OF DOLLARS



** Seasonally adjusted at an annual rate*

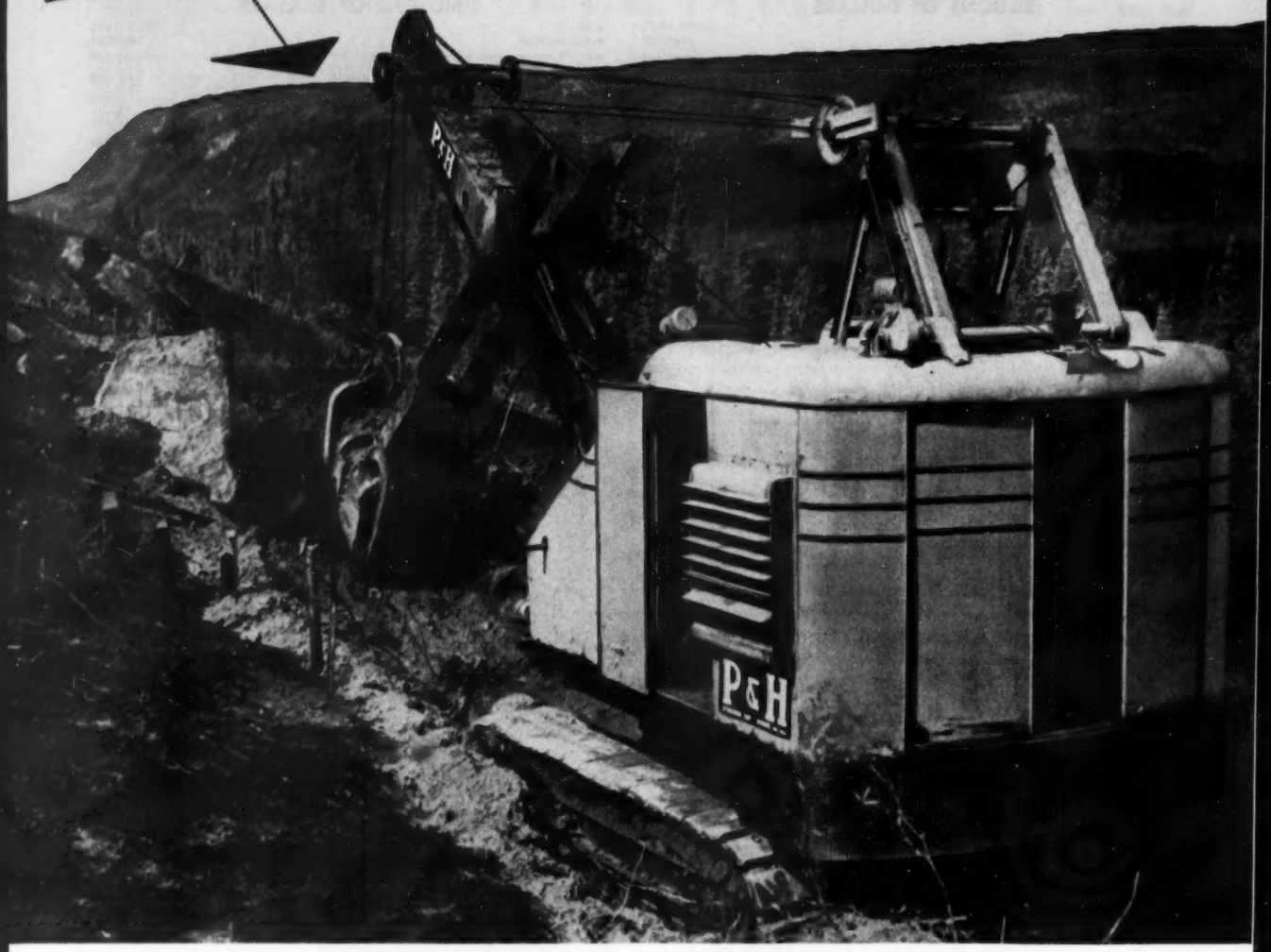
● New Construction Activity (MILLIONS OF DOLLARS)



DATA SUPPLIED BY DEPTS. OF COMMERCE AND LABOR

P&H STABILITY

makes a big difference!



When you need that extra push, you'll be glad your machine is a P&H. With its low center of gravity, better balance and all-welded construction of rolled alloy steels — you can exert more power at the tooth point with less strain or danger of tipping. That's what gives you the *added work capacity*. You can prove this for yourself as many others have done. Ask to see a P&H on a job near you. Watch it work!

And while you're there, watch the mobility on true tractor-type crawlers. Note how smooth hydraulic control enables the operator to "feel" the load at all times. It's easier on both man and machine. And far easier on maintenance. You'll sell yourself on P&H in a hurry.

P&H POWER SHOVEL AND CRANE DIVISION

HARNISCHFEGER CORPORATION

MILWAUKEE 46, WISCONSIN

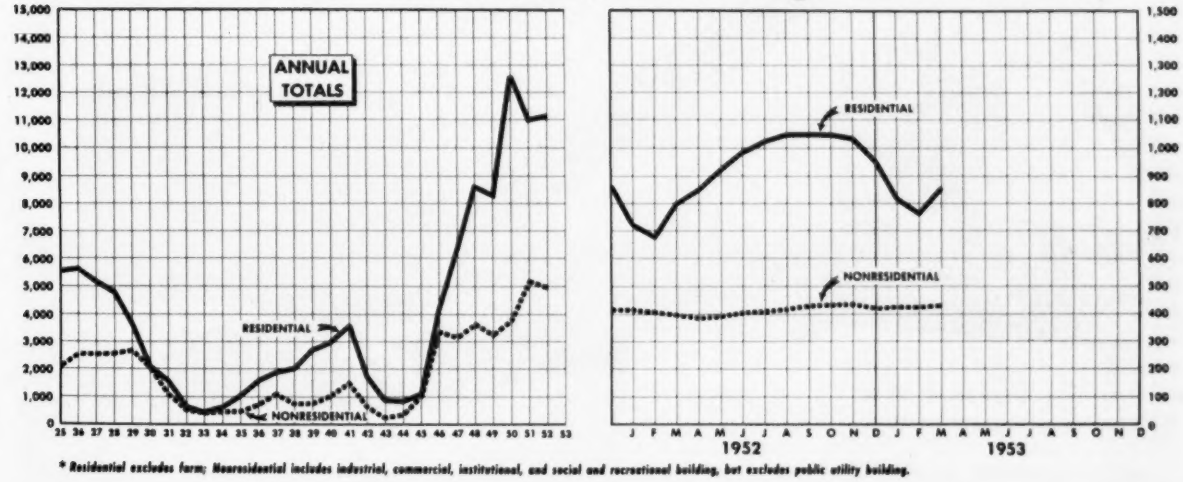
See your P&H Dealer!

Look to P&H for the most modern features in Power Shovel and Truck Crane construction. There's all-welded design, live roller circle, triple-safe boom hoist, hydraulic control, plus a low center of gravity that provides a higher ratio of lifting capacity to gross weight. This means more WORKABILITY . . . BETTER PERFORMANCE . . . GREATER SAFETY. Write for literature on the size you need.

Warehouses and Service Stations: MILWAUKEE, TETERBORO, BIRMINGHAM, DALLAS, LOS ANGELES, SEATTLE

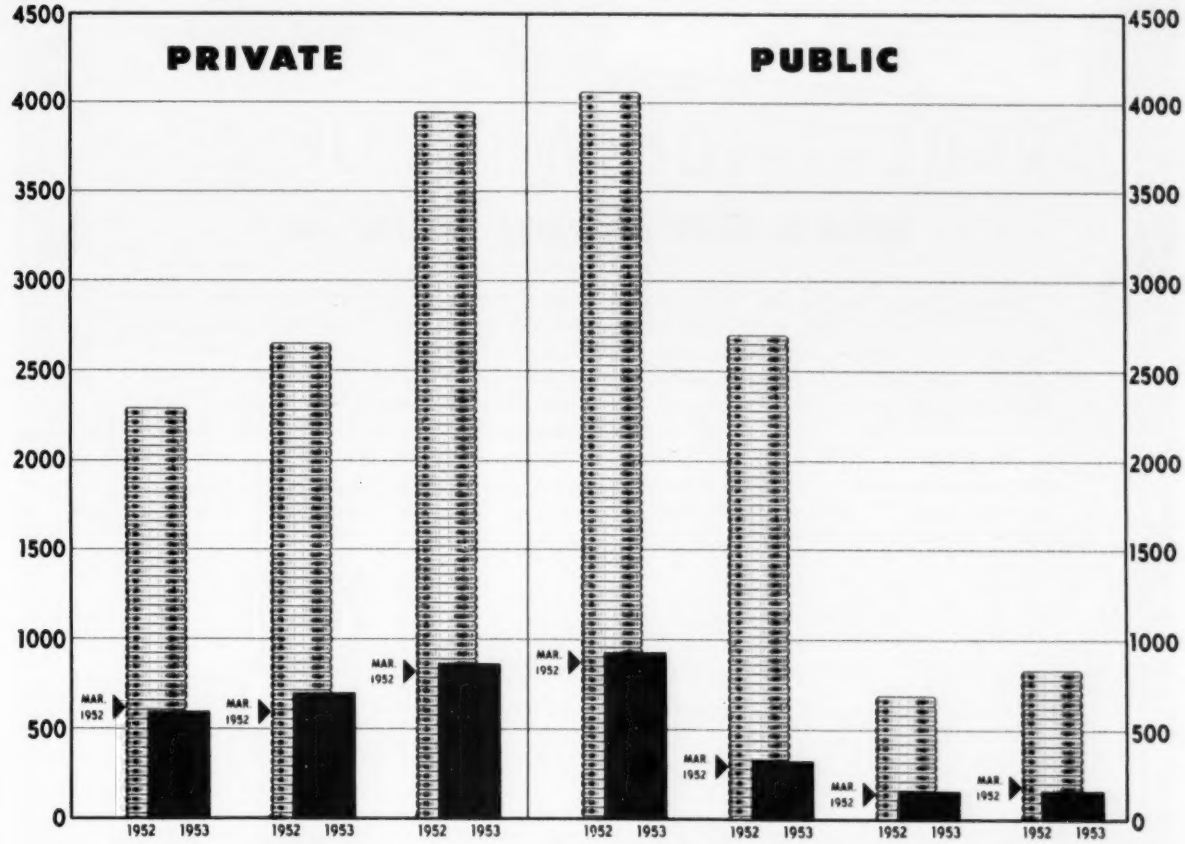
NEW CONSTRUCTION ACTIVITY

● Private Residential and Nonresidential Building * (MILLIONS OF DOLLARS)


ANNUAL TOTALS
RESIDENTIAL
NONRESIDENTIAL
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53
RESIDENTIAL
NONRESIDENTIAL
J F M A M J J A S O N D J F M A M J J A S O N D
1952
1953

* Residential excludes farm; Nonresidential includes industrial, commercial, institutional, and social and recreational building, but excludes public utility building.

● Selected Types: (CUMULATIVE, MILLIONS OF DOLLARS) 1952, 1953 VOLUME THROUGH MARCH



* Includes commercial, institutional, and social and recreational building.

GM DIESEL
CASE HISTORY No. 528-2

USER: Ritchie Brothers Construction Co., Wichita, Kansas, paving contractor.

INSTALLATION: GM 3-71 Diesel, replacing an 8-cylinder gasoline engine in a 3/4-yard dragline equipped with 46-foot boom.

PERFORMANCE: Plant Superintendent H. G. Hoffman reports the power and quick pickup of the GM Diesel engine permit this dragline to do 25% more work. Fuel and maintenance costs are both reduced.

PRODUCTION WENT UP 25%

when GM Diesel went in

"General Motors Diesel power made a real shovel out of this unit," says Mr. Hoffman. "We also use a 6-71 to power an asphalt plant, and recently, when we bought a new shovel, we ordered it equipped with GM Diesel power."

In new equipment or old, a 2-cycle GM Diesel gets more work done at lower cost. It produces power at every piston downstroke to give equipment maximum torque the *instant* a load hits—*before* engine r.p.m. falls off. A GM Diesel starts at the push of a button, burns few gallons of low-cost fuel, and delivers years of dependable service. Parts cost less and are readily available. Talk with other GM Diesel owners. Then see your GM Diesel distributor for economical horsepower—for any job.

DETROIT DIESEL ENGINE DIVISION
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SINGLE ENGINES...to 275 H.P. MULTIPLE UNITS...Up to 840 H.P.

It pays to Standardize on

Write for booklet, "A $2,000,000 Horsepower Insurance Policy" that tells you why.

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DIESEL POWER

For Moderate Income Families in Large Cities

(Formerly referred to as the "Cost of Living Index," compiled by the Bureau of Labor Statistics)

The Consumer Price Index, formerly calculated on the base 1935-39=100, was converted beginning January to the new base 1947-49=100 in compliance with recommendations of the Bureau of the Budget. All figures from now on will be calculated on the new base period.

A portion of this index below indicates the average changes in retail prices of selected goods, rents and services bought by the average family of moderate income from December 15, 1950 to February 15, 1953.

They are represented here for use by employers who may wish to take these cost of living data into consideration when contemplating adjustments of wages based on increased living costs.

Aside from the change of the base years, the revised index includes prices of about 300 items, compared to some 200 for the previous index. For the first time the index includes direct measures of home ownership and maintenance. The "weight" assigned to items is now based on facts concerning family expenditures of wage earners and clerical workers found in a survey on consumer expenditures conducted by the bureau.

Another change is that the list of cities in which prices for the new national index are being collected is representative of all urban places, ranging in size from New York City to towns of 2,500 population.

However, the list of individual cities for which new indexes are being published has been reduced from 34 to 20. The first five cities in the table below are to be checked and reported on monthly. The other 15 cities will be surveyed and their indexes published quarterly.

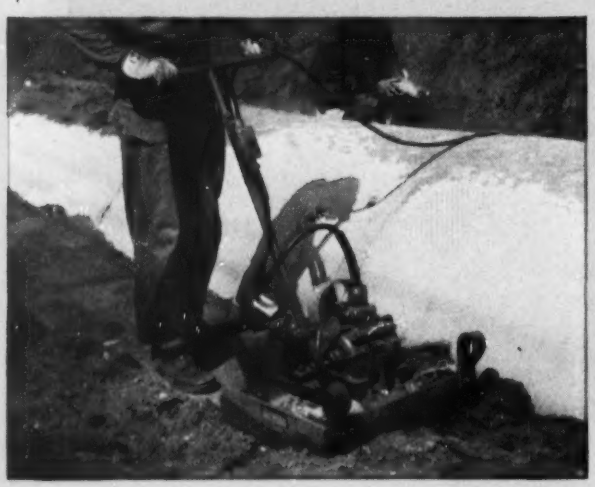
The revised index looks quite different from the old index, in that its figures are much lower. When converted, the revised index for December 1952, for example, is 114.1. Using the 1935-39 base of the older index the December figure is 191.0.

	1950	1951		1951	1952		1952	1953	
	DEC.	JAN.	FEB.	DEC.	JAN.	FEB.	DEC.	JAN.	FEB.
Average	106.9	108.6	109.9	113.1	113.1	112.4	114.1	113.9	113.4
New York, N. Y.	106.0	107.4	109.2	111.2	111.3	110.6	112.0	111.7	111.1
Chicago, Ill.	107.7	108.9	108.9	114.0	114.0	112.7	114.6	114.2	113.9
Los Angeles, Calif.	106.8	108.5	110.2	113.9	113.7	114.1	115.3	115.4	114.9
Philadelphia, Pa.	107.0	108.8	111.4	113.7	113.5	112.4	114.7	114.3	113.7
Detroit, Mich.	107.4	109.1	110.3	113.7	113.7	113.0	116.0	115.7	115.1
Atlanta, Ga.	.....	.....	110.6	.....	.....	115.1	.....	.....	.....
Baltimore, Md.	106.5	.....	.....	112.4	.....	.....	114.4	.....	.....
Boston, Mass.	106.3	107.8	109.0	112.4	111.8	111.4	112.4	112.1	.....
Cincinnati, Ohio	105.9	108.3	109.2	111.6	111.8	111.1	112.5	.....	.....
Cleveland, Ohio	.....	.....	109.3	.....	.....	112.6	.....	.....	112.5
Houston, Texas	109.9	112.3	112.8	115.8	115.4	114.8	116.7	.....	116.1
Kansas City, Mo.	.....	109.1	.....	.....	113.2	.....	.....	114.3	.....
Minneapolis, Minn.	107.3	.....	.....	113.3	.....	.....	114.6	114.4	.....
Pittsburgh, Pa.	106.0	107.9	109.2	112.8	113.1	112.3	113.4	112.6	.....
Portland, Ore.	.....	109.9	.....	.....	114.9	.....	.....	114.6	.....
St. Louis, Mo.	107.1	.....	.....	114.0	.....	.....	114.9	.....	.....
San Francisco, Calif.	106.2	.....	.....	113.0	.....	.....	115.6	.....	.....
Scranton, Pa.	.....	.....	108.8	.....	.....	110.8	.....	.....	112.2
Seattle, Wash.	.....	.....	110.2	.....	.....	114.3	.....	.....	114.6
Washington, D. C.	.....	.....	109.1	.....	.....	112.0	.....	.....	113.0

JACKSON ELECTRIC *Available*

A BETTER, MEANS OF *in:* MACADAM BITUMINOUS MIXES, PAVEMENT WIDENING

Self-propelled Tandem Jackson Compactor (15-in. wide) compacting sub-base to specified density, in one pass, for blacktop pavement widening strip. Controlled by spreader operator, it easily keeps up with spreader. Rate: 38 ft. per minute.



The super-powerful improved Jackson Vibratory Compactor which, as a manually operated machine, has proved so extremely efficient in the compaction of granular soils, sub-bases for blacktop highway widening projects and highway blacktop patching and widening, is now available in multiple units — in widths to meet the requirements of any project of any size — tailored to fit.

At left is illustrated a two-unit (4 ft. wide) Jackson Vibratory Compactor on macadam base course work. It is applied to a diminutive tractor, on which is mounted a Jackson Power Plant for operating compactors. With this new, faster and better means of macadam densification, 10" depths of rock can be keyed and compacted in just two passes. Voids completely filled with fines in just two additional passes, which is the operation shown.

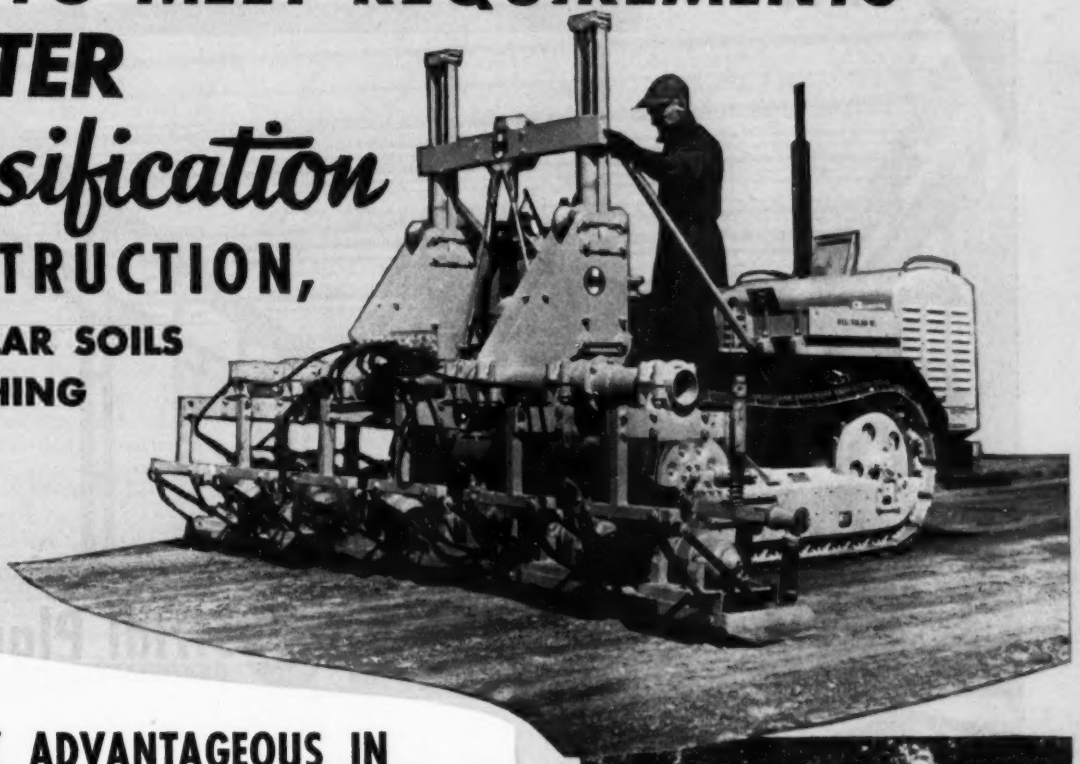
Jackson single-unit, manually guided Vibratory Compactor consolidating, to specified density, selected granular material used for backfilling in pipe line trench. Result — Pipe line is uniformly supported by compacted soil and top of trench stays to finished grade.

VIBRATORY COMPACTING EQUIPMENT

IN 12-INCH TO 12-FOOT WIDTHS TO MEET REQUIREMENTS

FASTER *Densification* CONSTRUCTION,

GRANULAR SOILS & PATCHING



EQUALLY ADVANTAGEOUS IN STABILIZED ROAD CONSTRUCTION

In bituminous-sand-gravel and other mixed-in-place combinations Jackson Vibratory Multiple-Unit Compactors achieve greater density and save time and money not only by greater efficiency but also by eliminating previously necessary operations. Shown above, is a six-unit Jackson Vibratory Compactor application, (12-ft. wide and adjustable for crowns) working on stabilized road.

It will pay you to get the complete facts on this outstanding equipment, at once! See your Jackson Distributor or write to us, giving details of project contemplated.

Manually guided, self-propelled, this 24" Jackson vibratory Compactor, with quick-pick-up auto trailer mounting a Jackson Power Plant, is unmatched for blacktop highway patching and widening, paving drives, railway crossings, platforms, and compacting granular soil in bridge approaches, concrete floor sub-bases and many other applications.

JACKSON VIBRATORS, Inc.

LUDINGTON, MICHIGAN

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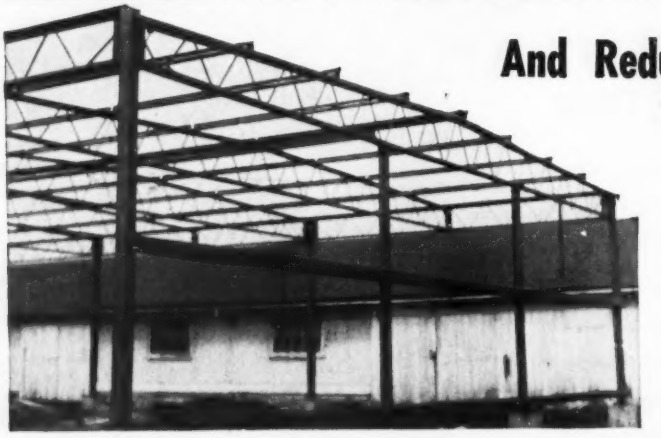
Frame A Modern School

Build An Industrial Plant



And Reduce Framing Costs of an Industrial Garage

V-LOK—the interlocking structural system made in standard bay sizes—is spelling out ECONOMY in many ways.

V-LOK will get a building up and under roof faster than any other type of steel construction.

These structural members design readily into standard school room dimensions, factory buildings, supermarkets, ranch type houses. Write for catalog.

STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER • INCORPORATED

CANTON, OHIO

V BAR JOISTS • LONGSPANS • BOWSTRING TRUSSES • STEEL DECK

Sidelights for Contractors

By John C. Hayes, *Counsel*

Taxes

Tax Reduction.—The prospect of an early cut in income tax on individuals has become dimmer as the Administration has found it increasingly difficult to bring about the desired balance in the budget. As a compromise, it is possible that the tax reduction for individuals may be advanced from its present date of December 31, and the termination date of the corporate excess profits tax may be delayed until after June 30, so that the effective date of tax relief for both individuals and corporations will be October 1.

Accrual of Final Payment.—A District Court ruled that a construction company on the accrual basis of accounting properly included in its 1941 income its entire fee under a cost-plus government contract, although the final 10% of the fee was not received until a subsequent year, where the contract was completed by the taxpayer and the work was accepted by the government in 1941 and no justiciable controversy or meritorious dispute remained. (But compare other decisions on this point as reported in January's and March's *Sidelights*.)

Short Term Trusts.—The income tax "Clifford" regulation, adopted following the Supreme Court's decision in the case of that name, has been declared by a Circuit Court to be arbitrary and unconstitutional in so far as it purports to tax to the grantor of a charitable trust the income therefrom solely because the trust term is for less than 10 years. The question of whether a grantor of a trust remains the owner thereof in substance and thus is taxable with its income, the Court states, is a factual issue to be decided by the courts upon consideration of all the "bundle of rights" retained by the grantor.

Medical Expenses. — In conformity with the Revenue Act of 1951, the income tax regulations have been amended to remove the 5% limitation in the deduction of medical expenses for taxpayers aged 65 or over.

The Bureau of Internal Revenue has published a ruling that an annual premium paid for accident and health insurance, which provides benefits for accidental loss of life or limbs, etc., but does not provide reimbursement for medical expenses, is not itself a deductible medical expense under Section 23(x) of the Code.

Suit for Overpayment.—A District Court has allowed a taxpayer to recover an overpayment of tax, although no formal claim for refund was filed within 3 years of the return or 2 years of payment. The taxpayer having overestimated his tax liability and requested that the overpayment be applied to future liability, the Court considered the Commissioner's subsequent issuance of a certificate of overpayment as an account stated, the recovery of which was governed by a 6-year statutory period of limitations.

Sale of Rented Property.—The management of rental properties, though carried on through a real estate agent, constitutes a trade or business, according to a decision by a Circuit Court, and a loss on the sale of one of such properties is an ordinary rather than a capital loss.

Injunction Against Collection.—Despite the broad statutory prohibition against injunctions to restrain the collection of taxes, a Circuit Court held that such a remedy was available to a corporation which had had its property seized by the Collector to satisfy the tax liability of two individuals from whom it had received the property. The Court thought that there was no liability on the part of the transferee corporation since it had paid full value for the property and that the seizure of its property should be enjoined to prevent a loss for which there was no adequate remedy at law.

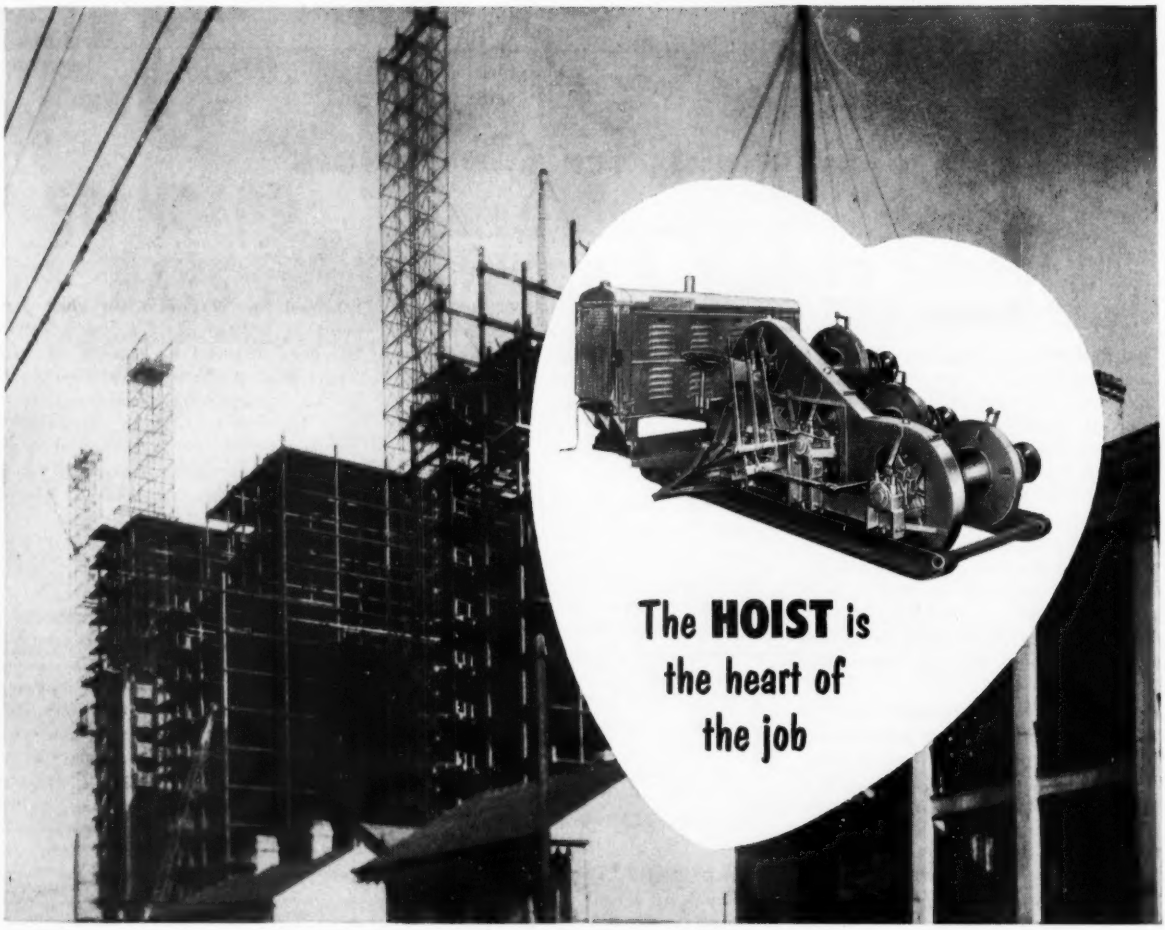
Public Contracts

Preservation of Records.—The Office of Contract Settlement has revised its regulation governing the preservation of records of World War II contractors. Its requirement that records be retained for 5 years after final payment or settlement of a war contract has been reduced to 3 years in cases where final payment for settlement of the war contract has been made on or after December 31, 1950. (Regulation 11, Revised March 4, 1953; published in Federal Register March 7, 1953, page 1318. This reduction, of course, has no application to any necessity of retention of records for tax or possible other purposes.)

Recovery for Part Performance.—Despite the fact that the reasonable value of the work completed by a contractor under a fixed price contract, before the government's termination thereof, may have exceeded the total contract price, the Comptroller General ruled that he could not approve the contracting agency's paying the contractor more than a pro rata share of the total contract price. The decision recognized that there are varying lines of authority on the maximum amount recoverable in a quantum meruit claim for work completed on a breached contract, but in the absence of a ruling by the Supreme Court or the Court of Claims, the Comptroller General felt that he should not follow the more liberal determinations.

Statute of Limitations.—The Supreme Court has held that the two-year statute of limitations imposed in the Portal-to-Portal Act applies to the government's suit for liquidated damages to enforce the child labor provisions of the Walsh-Healey Act, and that the statutory period begins to run from the date of violation of the Act rather than the later date of the determination by the Secretary of Labor that damages are to be sought.

Contract Settlement. — A recovery from a war contractor received 1947 by a subcontractor for loss of anticipated profits on services it was not permitted to perform was held by a Circuit Court to be properly accrued in 1947, rather than in 1944 when the Contract Settlement Act was enacted. Prior to 1947, the subcontractor had no uncontested right to receive payment and any amount it might receive was not reasonably ascertainable.



Counting minutes can be profitable work—whether you're on a $10,000,000 job like the Claiborne Towers, or even the smallest contract. And the closer you look to save wasted minutes, the more you will realize that the hoist is the heart of the job.

Shelby Construction Co., Inc. used three American Model 75 hoists on the Claiborne Towers, and an average 17-floor lift was timed at 48 seconds. If that time had dropped to 60 seconds, and you figure an average of 100 lifts per day, the total time loss would be 3⅓ hours every 10 days.

But you don't need a stop-watch or slide rule to know that a fast, dependable, rugged hoist saves you time and money. That's why most experienced contractors say: "I can't take a chance . . . I want an *American*." You can always find exactly the model you need in the broad American line. Let your nearest American distributor help you get the hoist that *makes minutes count.*

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Modernize...economize...with

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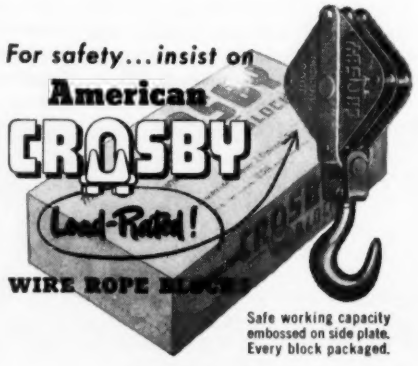

The 34th A.G.C. Annual Convention

» THE 34th annual convention of The Associated General Contractors of America, held in Miami, Florida, March 23-26, 1953, was the biggest and one of the best in association history.

The holding of such a meeting of men and women from all parts of the nation and Alaska inevitably draws attention to the size of the construction industry and the contributions it makes to the national welfare and defense.

The prospects reported were that the construction industry during 1953 is likely to establish another record of new construction activity in excess of $33 billion, and of nearly $45 billion in total activity when maintenance and repair operations are included.

If the potentials are realized, the industry once again will be the greatest single activity in the nation and will contribute approximately one-eighth of all the wealth created in the nation and its communities in services and products.

The phrase, *America Progresses Through Construction*, has been used many times to describe the contributions which the industry makes to the nation and its communities. In addition, the industry's work at home and overseas will be the foundation on which the national defense program rests.

Attention was also focused by the convention on the key role which general contractors play in the construction industry, and the responsibilities which they have to investors in construction and the public when they assume the centralized responsibility for the execution of construction projects.

A convention such as this also provides the opportunity to examine thoroughly the work which has been taken by the association, nationally and locally, of benefit to its members, the industry, and the public, and to assess the potentialities for the future.

The conditions which are on hand for the industry were found to be those of an abundant volume of work, brought about by the removal of government controls and by the general availability of materials, but characterized by intense competition, sharp bidding and lower prices for completed projects.

The convention took the position that the competition is an integral part of the economic system for which its members stand and is one of the means by which the public secures maximum value for its investment in construction.

The contributions which the construction industry can make to a dynamic national economy, the keystone of American prosperity and of a free world, were found to be unlimited. The making of these contributions was found to depend, in part, on the widest possible understanding of objectives and on coordinated action.

The deliberations and actions of the convention brought greater recognition of the value of the association, nationally and locally, of serving as the means through which information is provided for the industry and actions can be coordinated for the common good.

The national association was able to report that through the years its facilities had been developed to the point where positive, constructive action was being taken on all major problems facing members, with the exception of problems such as unsettled international conditions.

The A.G.C., when established in 1918 with 97 members, was founded upon the principle that industries and individuals, in order to retain the benefits arising from free initiative, should themselves accept responsibility for fair and intelligent self government and should discharge their obligations to the public to the best of their abilities.

During the years there has been concentrated and accumulated through the association the wisdom and the benefits of the constructive actions of the men who have been officers, directors, chairmen and members of committees, members of chapter or national staffs. The effects of their constructive actions are steadily accruing to the benefit of A.G.C. members.

Each year it has been notable how the A.G.C. has taken advantage of the accumulated experience, wisdom, and accomplishments of the past and has broadened its horizons for future actions so that its work continues to increase in volume, in effectiveness, and in value for the benefit of its members and the public.

The association at the latest A.G.C. annual convention made innumerable recommendations and contributions for the industry. Among other things, the A.G.C. asked that:

The construction industry discharge its full responsibility in bringing about a dynamic national economy.

The industry continue to execute essential defense construction more efficiently and economically.

Members and the association take effective steps to help stabilize the national economy.

Contractors improve relationships with workmen.

The association help develop improved contract documents, specifications and administrative procedures which are fair and equitable and which provide tremendous savings to all concerned.

The industry seek to bring qualified new men into the industry and providing for their proper training.

Contractors continue to improve safety methods to prevent injuries and other losses.

The association strive to improve relationships of general contractors and other segments of the industry, the government, and the public.

On a keynote that there should be a spiritual mobilization coincident with our material mobilization, the A.G.C. at its 34th annual convention took a number of other actions which will further identify its members as contractors of skill, integrity, and responsibility.

"... intelligently handle the factors of air entrainment"

– James A. Nicholson

There, in just seven words, is what *you* and every man engaged in concrete construction should know about air-entrained concrete. Mr. Nicholson made that statement during a speech before an assemblage of concrete experts from all over the United States at the Quality Concrete Conference held at Vanderbilt University last October. The Nicholson Concrete Company, Toledo, Ohio, of which he is president, has had years of experience producing air-entrained concrete for many types of construction jobs.

In his talk, Mr. Nicholson went on to state: "Air entrainment by performance has earned widespread acceptance. The advantages of air entrainment so far outweigh the disadvantages (real or fancied), that there can be no justification for not specifying air-entrained concrete for practically all construction jobs.

"The way to overcome the disadvantages ... is to intelligently handle the factors of air entrainment. *You do this by properly designing the mix and by controlling the amount of air entrained, to fit intended job use.*"

The *safe*, simple way to be *sure* with air-entrained concrete, as Mr. Nicholson points out, is to follow the "prescription" method *—add the required amount of any well-known air entraining agent to standard portland cement at the mixer.* And remember—in cements, whether air entraining or standard portland, there are none better than Marquette.

★ ★ ★

If you have any problems or questions on the use and mixing of air-entrained concrete, the Marquette Service Engineer will be glad to help and advise you—contact any Marquette office.

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Marquette Cements

Keenest Competition Forecast Since 1940, in A.G.C. Survey

- Bids to Sharpen Despite Abundant Work Ahead
- Lower Prices in View for Completed Projects

» USHERED in by the removal of government controls and the general availability of materials, a period of abundant work characterized by intense competition, sharp bidding and lower prices for completed construction jobs is at hand for the construction industry, according to a national A.G.C. survey.

Prices of materials are expected to be relatively stable with increases in some lines, and there is evidence that labor's demand for wage raises, including fringe benefits in some areas, will be strongly resisted by employers, it was reported.

The survey, covering prospects for the next six months, was made among the association's 80 national directors and 122 chapters throughout the country and Alaska.

The survey, made by telegraph, indicated strongly that the amount of work coming on the market for the next six months of 1953 would be greater than in the comparable period last year for all three general classifications of construction — building, highway and heavy.

Almost without exception—the actual ratio was 93 percent—respondents to the survey, reported a sharp rise in competition, characterized by some as the greatest they had ever experienced. Many of the respondents said it was the most severe since 1940. One contractor from the Middlewest expressed himself thus: "Intensity of competition is intensely intense and no fun or profit on a market such as this."

Another Midwest contractor reported: "Competition has been terrific. Building jobs in this area so far have gone at cost or less." A builder in the Middle Atlantic area wired: "Competition extremely keen. Builders reducing prices to alarming and distressingly low limits." One reply from this region was terse: "Competition terrific." This word came from the Southwest: "Competition more intense in this area than ever before."

Replies Are Emphatic

Other replies were equally emphatic, using such adjectives as "vicious," "rough," "terrible," "keen," discouraging," "heavy," "tight," etc., to describe the competitive situation in their areas.

The apparent paradox—more work but also more competition per job—was interpreted by A.G.C. officials as a sign that more and more contractors were returning to the market who had not been bidding formerly because of uncertainties caused by controls—uncertainties which translated themselves into costly on-the-job delays for the contractor.

Contractors are being encouraged to bid, A.G.C. spokesmen said, by substantial assurance that they could now proceed on job schedules at a pace set by themselves for maximum efficiency and economy. They are apparently bidding on many jobs simultaneously, it was believed, and "loading up" on projects which they are able to complete in rapid-fire order with newly-developed techniques and equipment.

Greatly Increased Capacity

Highway and heavy engineering projects especially lend themselves to mechanization on a large scale and the introduction of new machines in these fields in recent years as well as new speed techniques developed in other branches of construction during World War II under the pressure of the heavy volume of defense work have greatly increased the capacity of the industry, A.G.C. officials said.

They also cited the general feeling of optimism among contractors fostered by forecasts of a record year and the belief that a better business climate now prevailed in the country, as an additional factor beckoning contractors to increased activity.

The greatest increase was foreseen in highway construction according to the survey, with 86 percent of the respondents stating that work in this category of construction would be at the same high volume or greater than in the comparable period of 1952. Sixty-two percent of the respondents said highway construction would be greater, 24 percent said it would be the same and 14 percent said it would be less.

Fifty-four percent said building activity would be greater in the next six months of this year than in the comparable months of 1952, while 24 percent said it would be at the same level; giving a total of 78 percent of the respondents who forecast a volume in this branch of construction higher or equal to the same period last year.

In the field of heavy construction, 64 percent said it would be greater or the same. This was made up of 41 percent who forecast a greater volume of heavy construction and 24 percent who anticipated a volume equal to the 1952 period. Thirty-five percent looked for a decline in heavy construction.

With the exception of an estimated decline in heavy construction in the Middle Atlantic and Southwestern States, the story foretold by the survey of gains in all three categories of construction activity was a uniform one throughout the country. The Southwest showed the greatest conservatism in its predictions while all the replies from New England predicted gains without exception. The South, Midwest and Pacific Coast areas showed the greatest optimism.

The picture by area, with noteworthy features:

New England—Replies were 100 percent for gains in building, highway and heavy construction over the comparable six months of 1952. The A.G.C. of New Hampshire and Vermont predicted more than a 100 percent increase in heavy construction and a 15 percent increase in highway construction in its area. The Rhode Island chapter said prospects in all three categories for the next six months were "excellent."

Middle Atlantic—Building and highway work to increase, heavy to decrease. The decline in heavy construction was predicted by 55 percent of the replies. Sixty-nine percent of the respondents looked for a greater volume of highway work.

Several of the replies noted a shift to commercial, institutional and school construction away from industrial. Competition was reported "terrific" in this area and one report said prices for completed projects "have not advanced and in most cases are lower than a year ago."

South—Increases were predicted in all categories, with as high as 63 per-

cent of the replies for an increase in building construction. Here as else where it should be borne in mind in evaluating the survey that the period of comparison was a time of record output for the construction industry.

West Virginia reported a building increase of 50 percent ahead, with a shift to school construction. Industrial construction was expected to rise in Louisiana. Throughout the South, somewhat of a trend to commercial and industrial construction was foreseen.

Midwest—Greater volume of construction expected in all categories. A definite trend to commercial and school building with a lighter shift to public works, hospital and institutional work and a moderate decline in industrial.

Southwest—More building and highway work. Fifty percent of the replies from this area predicted a decline in heavy work. A record volume of building construction was deemed possible in West Texas where in the field of heavy construction the emphasis was expected to be on public works. Somewhat of a trend to schools and commercial activity was reported from West Texas, Amarillo, Houston and Corpus Christi.

Rocky Mountain States—Increases predicted in all categories with a rise in building construction more confidently expected than in highway or heavy. Building construction is expected to rise by 25 percent in Wyoming with schools accounting for a good share of the building increase. Building will also be up in Colorado School construction and public works is expected to increase in Nevada.

Pacific Coast—Higher volume in all categories, with 80 percent of the replies foreseeing an increase in highway activity and 60 percent foretelling an increase in building work. Building, it was predicted, would decline in Alaska for the first half of the year.

There were some shifts in types of projects reported here and there in the country. However, nationally, the "heaviest" trends were: 18 percent of the replies indicated a shift to commercial work; 15 percent said school construction would go up over the comparable six months of last year, and 8 percent reported that institutional work would increase.

A relatively stable price structure for materials was reported from all sections of the country, with some contractors declaring that various materials had declined or were expected to decline in price. Likewise, there were reports of increases in some items and the expectation of further increases. The Middlewest and Middle Atlantic areas appeared to have the most stable price structures with pressure for higher prices strongest in the Southwest.

Pressure for higher wage rates was reported by 83 percent of those answering the survey. Seventeen percent said wages were likely to remain stable while 7.5 percent reported pressure for fringe benefits such as health and welfare insurance. There were strong indications that employers generally would make determined efforts "to hold the line" on demands for wage increases.

New Scruggs Vandervoort Barney department store in fashionable Clayton, Missouri. Architect: Harris Armstrong. Consulting Engineer: Neal J. Campbell. Contractor: Gamble Construction Co.

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LACLEDE CONSTRUCTION STEEL

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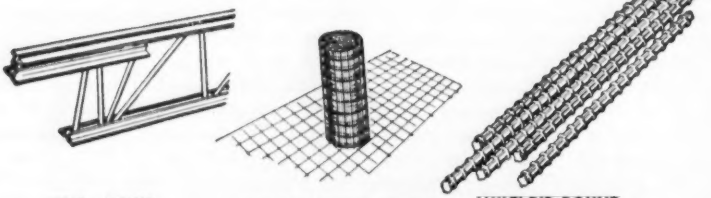

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With Laclede improved design for maximum anchorage . . . and numbered to meet latest ASTM A305 Specifications.

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LACLEDE Producers of Construction Steel

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New Responsibilities Faced by Contractors at A.G.C. Meeting

- 34th Annual Convention at Miami Draws 1,800
- Builders View Role of Largest U. S. Industry

» MEMBERS of The Associated General Contractors of America met in annual convention last month in Miami, Fla., to review the construction industry's year of greatest activity and the association's contributions to its progress in 1952.

It was apparent from the range of problems aired that both the industry and the association have entered a period of deeper responsibilities to the national welfare. The volume of construction and its impact upon the economy of the United States presented an inspiring picture to the 1,800 general contractors and other construction representatives present at the four-day Miami meeting. The industry has grown to the point where an estimated work volume of $44 billion will be performed this year and where one out of every eight dollars received for goods and services in the nation's market place is a construction dollar.

Other Convention News

Highlights of the A.G.C. convention carried in this issue of THE CONSTRUCTOR will be supplemented in the May issue by complete reports of Division meetings and actions of cooperative committees.

The conditions expected by the industry during the next six months were reported to the convention from a survey of the association's directors and chapters. Ushered in by the removal of government controls and the general availability of materials, a period of abundant work is apparently at hand. The survey revealed, however, that intense competition, sharp bidding and lower prices are in the offing—further assurance to the public that it will receive full value for its investments in construction.

Convention Resolutions Passed

Cognizant of these conditions, the convention of general contractors took several important actions. Briefly, the A.G.C.:

- Considered means whereby contractors and the association can discharge their proper responsibilities in working toward a more dynamic national economy, now that most controls over the industry have been removed.
- Recommended policies for the most economical continuation of defense construction.
- Adopted policies by which members and the association can work for the stabilization of wage rates and improved labor-management relations.
- Encourage the expansion of apprentice training and other programs which help qualified young men to enter the industry and which provide for their proper training.
- Approved further expansion of the accident prevention program carried on by the association for more than a quarter of a century. It was again pointed out that contractors acting voluntarily can administer safety programs on their projects more efficiently than under government regulation.
- Made several recommendations for the improvement of contract documents, specifications, and administrative procedures which would lead to more economical practices on public and private construction.
- Approved the review of all federal expenditures with a view toward balancing the budget. It was recommended that the government proceed only with public works projects which are clearly essential and employ on them the strictest standards of economy, so long as sound engineering judgment is exercised and necessary projects are not delayed needlessly.
- Recommended principles to guide Congress in its consideration of legislation affecting the industry.
- Recommended a step for federal and other government units by which more adequate financing of the nation's highway needs may be reached.
- Recommended more adequate compensation for the engineers needed to design public works projects and administer construction programs.
- Offered again its cooperation to solve within the industry such problems of relations of general contractors with other segments of the industry as may arise.
- Reviewed the progress of the first five years of the association's co-ordinated public relations program and recommended continuation of an energetic program in all its phases.
- Approved recommendations leading to more effective cooperation of national and chapter staffs in carrying out the association's programs.

(Complete text of resolutions are on pages 32 and 33.)

New A.G.C. Officers Installed

C. P. Street, of McDevitt & Street Co., Charlotte, N. C., was installed as president of the A.G.C. to succeed Arthur S. Horner, of the A. S. Horner Construction Co., Denver, Colo.

John MacLeod, of the Macco Corp., Paramount, Calif., was installed as vice president to succeed Mr. Street.

Past President William Muirhead, of the William Muirhead Construction Co., Durham, N. C., was re-elected secretary-treasurer.

Division Sessions Well Attended

Separate meetings of the occupational divisions elected new officers and considered the problems pertinent to their types of construction.

The *Building Contractors' Division*, which represents 3,450 A.G.C. contractors engaged in building construction, considered measures adopted by various federal contracting agencies in response to A.G.C. proposals and relationships with subcontractors. The group elected Frank W. Burrows of Williams & Burrows, Burlingame, Calif., as chairman to succeed W. Murray Werner, The Werner Co., Shreveport, La. Frank J. Rooney, Miami contractor, was installed as vice chairman.

The *Highway Contractors' Division*, representing 2,675 A.G.C. contractors in highway and airport work, found the problem of highway financing the chief topic of discussion. The division installed P. M. Thornton of the Thornton Construction Co., Hancock, Mich., as chairman succeeding F. W. Heldenfels, Jr., Heldenfels Bros., Corpus Christi, Tex. M. Claire Miller of San-Ore Construction Co., McPherson, Kan., was elected vice chairman. (Colonel Miller had been vice chairman of the division before serving in Korea as commanding officer of the 439th Engineer Construction Battalion, an affiliated unit sponsored by the A.G.C. Kansas Contractors Association which performed outstanding

Mr. Foreman

A.G.C.'s Managing Director, H. E. Foreman, gave the 34th annual convention a comprehensive report on association activities in 1952. He included these remarks:

"Through the years, the A.G.C. has developed its facilities to the point where it has been able to take positive action on practically all major problems which have faced general contractors."

"The removal of emergency controls over the industry and a fresh concept of governmental functions by the new Administration provide a great opportunity to the association for constructive action on projects of long-range benefit to its members, to the industry generally, and to the public.

"The accomplishments of the past are preparation for greater achievements in the future. Throughout its history, the association, locally and nationally, has been the medium through which its leaders have taken action for the improvement of conditions in the industry."

(See full text of Mr. Foreman's annual report on Page 65.)

An important feature of the convention was the undertaking of mutual problems of the A.G.C. with other industry groups in joint cooperative committee meetings. In a number of separate sessions, contractors met with state highway officials, with state aviation officials, with construction equipment distributors, with materials producers and with representatives from the Construction Industry Manufacturers' Association. Results of the discussions will be reported in next month's issue of THE CONSTRUCTOR.

Breakfast Meetings Held

Two breakfast meetings were held by presidents and vice presidents of the chapters, branches and national association for the discussion of matters of mutual interest. While there were no formal programs or actions, the meetings provided the opportunity for the exchange of valuable information and ideas.

At one session of the convention, 75 members of the chapter and national staffs were recognized for long service to the association. Awards were to 49 who had served over 10 years, after their nomination by officers of the chapters and national association and approval of the Executive Committee. Twenty-six other individuals were honored for service up to 10 years with an A.G.C. organization.

The welcome to Miami was extended by M. R. Harrison, Jr., president of the South Florida Chapter.

Miami Entertainment Planned

An outstanding program of entertainment was provided by the hosts, which included members and chapters in District 10, comprising the states of Florida, Georgia, North Carolina, South Carolina, Virginia, and the South Florida Chapter.

The light side of the convention opened with a "Welcome Night"—reception, buffet and entertainment—sponsored by underwriting companies of the surety industry.

Other attractions included a golf tournament at the Riviera Country Club, a "Day-at-the-Races" at Gulfstream Race Track, and a "Day-at-the-Beach" at Crandon Park. Concluding event was the annual banquet, at which Frank J. Rooney, chairman of the General Convention Committee, served as toastmaster. Past presidents and their wives were introduced and both the incoming and the retiring presidents, C. P. Street and Arthur S. Horner, made brief remarks.

Mr. Horner

In his address opening the convention, A.G.C. President Horner reviewed the progress of the A.G.C. during 1952 and called attention to the opportunities of the future.

In his comments, he said, "I believe that the construction industry, and this association, has before it perhaps its greatest opportunity of all time for helping in the growth and development of our nation and its communities.

"We all keep thinking of the future and wonder if construction levels can continue high. The facts are that in construction the *needs* for most kinds of construction now are also at all time highs. We need thousands of classrooms each year for the growing number of school children. The demands of traffic are increasing so rapidly and our highways are deteriorating at such a rate that current construction is not even keeping pace with the needs. Our needs for water systems, the development of natural resources, and many others are such that we cannot catch up with demands for many years.

"The thought which I wish to express here is that in a dynamic economy the potentialities of the construction industry will be met as individuals, institutions, and public agencies realize the needs for construction projects and have the confidence that they will receive full value for their investment in construction.

"Our great opportunity now is to demonstrate by our actions, individually as contractors and also collectively as an association, to the public that the projects which they need will be built with a maximum of skill, integrity and responsibility."

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military construction work in Korea.)

The *Heavy Construction and Railroad Contractors' Division,* representing 2,507 firms handling that type of construction, met to review progress of A.G.C. task units seeking specification adjustments with federal agencies. Installed as chairman was Chester W. Cunningham, Condon-Cunningham Co., Omaha, to succeed Edward P. Coblentz, McLean Contracting Co., Baltimore. A. S. Macdonald of Strong & Macdonald, Tacoma, Wash., is new vice chairman.

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360 MILES TO UNGAVA IRON

and it's a tough job every inch of the way

Two Gardner-Denver compressors, powered by Cat D8800 Engines, furnish air for drilling blast holes.

A D8 with No. 8A 'Dozer pioneers a path for drill crews and compressors. This is typical terrain.

One of the most spectacular engineering jobs of this century is the construction of a railroad from Seven Islands, Quebec, on the St. Lawrence, to Knob Lake, 850 miles from the Arctic Circle. It is being built for the Iron Ore Company of Canada, to tap the rich iron deposits of the Ungava region.

Early last year a section boss, working on the right of way that runs northward to Labrador, made a historic remark. Quoted in a national magazine, he said, "Without the Cat* and the airplane that ore would sure stay up there a mighty long time."

This P & H 1½-yd. shovel, excavating on the right of way, is powered by a Caterpillar D13000 Engine.

It was the airplane that flew in the men and the first small tractors and bulldozers. They in turn built the landing fields for bigger planes to bring in bigger earthmovers. Since then the battle has gone forward, foot by rugged foot, through the wilderness.

Today, at a rough estimate, more than 250 miles of right of way have been cleared and 190 miles rough-graded. Something over 110 miles of track have been laid and are in use.

Handling the job are four big contracting firms which have pooled their resources under the name of C.M.M.K. The initials stand for Cartier Construction Co., McNamara Construction Co., Mannix Ltd. and Morrison-Knudsen of Canada. An immense quantity of equipment has been assembled by the combined companies. It includes track-type tractors and bulldozers, wheel tractors and scrapers, wagons, motor graders, shovels, cranes, compressors, engines and electric sets. About 195 Caterpillar* units are in use – roughly two-thirds of the total machines on the job.

The route traverses extremely rough terrain, with mountains, dense forests and 1,000-foot canyons to be crossed. Much of it has to be blasted out of solid rock, and in the whole 360 miles there isn't a yard that isn't tough.

In the bitter months of midwinter much of the equipment is laid up in the

At this point the grade is nearly ready for rail. A Cat No. 12 Motor Grader is shown spreading and leveling fill.

scores of camps that have been built along the route. During this period operations and maintenance men have an opportunity to overhaul the machines in preparation for open weather. Caterpillar Dealers have sent some of their best service men and special tools to the base camps to help with the work.

The cost of the railroad project has been estimated at $200,000,000, and it may easily run higher. Started in the fall of 1950, it is expected that the job will be completed and the first ore hauled out in 1954. Meanwhile the mines are being developed, and within two or three years this area should be furnishing the raw material for a big share of America's steel.

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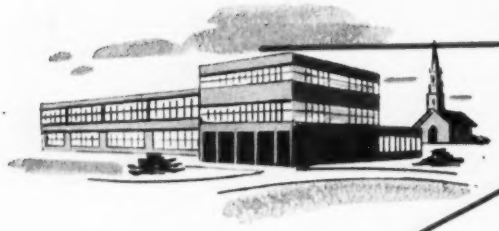
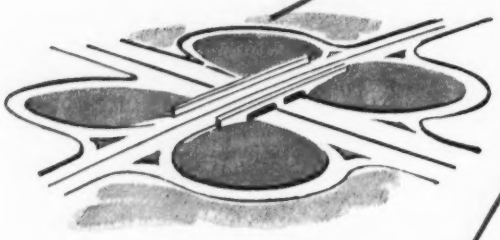


There is tremendous need for all kinds of construction

institutions, buildings

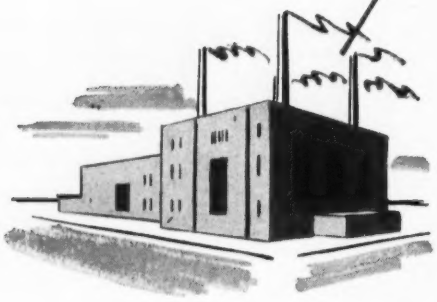
highways

basic community facilities



The Construction Industry has the immediate capacity

to build these essential projects wherever needed



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America Progresses Through Construction . . . Construct by Contract!

Williams Tells Builders of Nation's Needs

• Reassures Contractors of Prospects After the Defense Buildup

» W. WALTER WILLIAMS, Under Secretary of Commerce, told general contractors assembled at the A.G.C. Miami convention that theirs is a major responsibility in the nation's economy.

He spoke of the movement under a Republican Administration back to the merits of competition and a free market in which business can flourish and he called attention to a backlog of construction needs that should stimulate the industry for some time to come.

"We must avoid the impairment of the free market," Mr. Williams declared. "We must preserve the capitalistic free enterprise system. We must avoid the destruction of individual incentive and ingenuity; we must continue to work for an economic environment in which inventiveness, initiative and hard work will be rewarded. We must avoid destroying the growth of productivity without which rising living standards and economic growth are impossible."

No "Hush-Hush" About Recession

Speaking of the fear of a recession, the under secretary said, "Today, every so often, one hears questions asked and anxieties whispered with respect to the possibility of a decline in our business curve as defense expenditures taper off. This is not a problem to be dealt with in a 'hush-hush' fashion. It is a problem to be brought out and laid upon the table in the broad light of day. A careful examination should be made of all the facts and a sound plan devised.

"The innumerable wants and demands of a nation comprising 158 million people are such that a thorough going sales promotion program should readily enough be able to pick up the slack occasioned by a lessening of defense expenditures."

Points Out Highway Needs

Of highway construction needs, he stated, "There were 53,000,000 motor vehicles traversing highways in 1952. These covered a total distance of 517 billion miles. This was 71% greater than the 302 billion miles run in 1940 by 32,435,000 vehicles. It is interesting to note that the increase of travel in this 12-year period parallels almost exactly the increase in this country's total production of goods and services. If this parallel continues and the gross national product expands at even the minimum rate that has been estimated, we may look for a travel of 725 billion vehicle miles, a further increase of 40%, by 1963—10 years hence.

Mr. Williams

"Most of us think that traffic conditions are intolerable now, but the next ten years, it appears, will bring worse conditions unles we can find the means of increasing the capacity of our highways and streets to convey the steadily increasing flow of travel. The size of the present program gives no particular assurance that we shall better conditions in the future. The big obstacle in the way of an all-out expanded highway construction program is lack of funds."

Of the new administration, he said, "The new team in Washington believes that the potential benefits which may derive for all of our people are well nigh unlimited, if it is clearly recognized what makes our economic system tick. This new team believes in helping to develop a dynamic, expanding economy, the products of which will increase the well-being of all of our citizens.

"Although many of the members of this new team have come from the ranks of business, nevertheless, these businessmen clearly recognize that only as all segments of our economic society prosper and benefit can the businessman and his interests prosper and benefit."

Hunter Reports on Naval Construction

» PROGRESS on the Navy's civil construction program was outlined for the A.G.C. contractors by Capt. A. D. Hunter, deputy chief of the Navy Bureau of Yards and Docks.

Captain Hunter

He pointed out that construction completed or under construction during the year ending March 1 totaled $1.2 billion, compared to a budget of $250 million for the whole Navy 20 years ago.

"A sound military public works program of reasonable size each year is good strategic policy and would work out better than our recent program of feast and famine. When we get a large program one year and then a starvation one or none at all in the following year, we knock ourselves out building up to take care of the large program and then repeat the process in reverse in tearing apart our organization to get within the budget limitations of the small one. That way we waste a lot of time, effort and money. I know you people in the construction industry would welcome a balanced program.

"During the last year, we believe that our construction program progressed reasonably well. Such a program cannot get anywhere without the contracting industry. As usual, it has been a pleasure working with your organization and the many members who have been awarded our contracts."

Problems in Military Construction Aired

• Sturgis Asks Contractors to Help Effect Building Economies

» PROBLEMS of national defense and civil construction were outlined by Maj. Gen. Samuel D. Sturgis, Jr., who in one of his first public apperances since confirmation as the Army Chief of Engineers, pointed out at the A.G.C. annual meeting that the military construction program is particularly challenging.

"If anything, the jobs we are doing and the jobs we will be called upon to do exceed the World War II requirements for ingenuity and careful planning, he said. "For today we must plan our defense construction to meet future needs that are not always positive. The military construction program today is necessarily based on decisions subject to changes generated by the continual shifts and maneuvers of global strategy."

Of overseas construction, he noted, "This task poses our most difficult problem because we are charged with accomplishing this mission efficiently and economically in areas where comparable major construction has never before been attempted. The problems are numerous and presently available solutions at best are only partial. We are assigned schedules comparable to wartime and given a set of peacetime rules."

Essential Projects Program

Speaking of civil works he stated, "As usual in times of emergency, when military construction is greatly accelerated, there has been a decrease or slowdown in these activities. At the present time, our civil works program essentially is made up of projects which contribute directly to the defense effort or to projects necessary to the civilian economy which support the defense requirements."

Speaking of the "freeze" of construction projects while programs are being reviewed and of relationships with the industry, he said, "We have an over-riding responsibility to ascertain that what we build is absolutely necessary and that it is of a full dollar's value to the government. The responsibility for insuring the best construction is not the government's alone. As contractors you must share equally that burden. In our relationships with the construction industry, the Corps of Engineers has been, and will continue to be, guided by two principles: (1) To insure economical, adequate construction for the government and (2) to insure fairness to the contractor."

General Sturgis

"The contractors of America and the Corps of Engineers have had a long, successful and honorable record of association."

Defends Corps' Civil Works

He referred to relationships and experiences of contractors and the Corps of Engineers during World War II and the defense program, and said:

"We were able to take up successfully that vast task because of our experience in executing the world's greatest peacetime civil works construction job, and especially because of the resources of our country-wide civil works organization. Without that all-important background gained through civil works, that vital nucleous of operational districts and divisions that no treasure could purchase on the outbreak of war or no system replace, we could never have done the job. Woe betide this country should it ever forget the bulwark that the civil works of the Corps of Engineers has been to the national defense.

Proctor Reaffirms Role of the Engineer

• Calls for Restoration of Faith in Individual Initiative

» THE need for a "spiritual mobilization coincident with our material mobilization," was described to the 34th annual A.G.C. convention by Carlton S. Proctor, of New York, past president of the American Society of Civil Engineers. Mr. Proctor declared that the engineer has been called upon "for decision as to whether his celebrations were to encompass merely the exhibition of past accomplishments or were to include evidence of the dedication of his talents to a more complete service to the welfare of mankind."

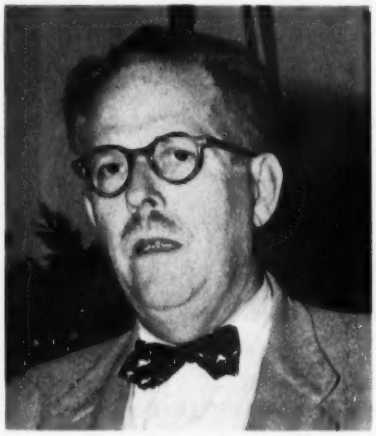
Impact of Engineering Work

Referring to the engineer's role in society reviewed last year at the Centennial of Engineering, he said:

"Here was his opportunity for acknowledgment of his direct responsibilities for the social impacts and the economic repercussions of his work. This was the time for decision as to whether this great convocation was to set its sights and standards by accomplishments of the past, or would serve as the portal to opportunity to appraise the increasing demands of the engineer of tomorrow; the threshold from which to view the expanding horizons and poignant opportunities of the engineering era ahead of us."

He added: "Restoration of faith in the values of individual freedoms and in competitive enterprise and the renewal of man's confidence in the integrity of engineered science can be

(Continued on page 31)



Mr. Proctor

accomplished through a restoration of man's faith in spiritual values to restore his eagerness to face the dangers of the moment so that he may experience the certainty of the eternal.

"Every man in our great construction industry should see more clearly than does he of any other pursuit that the benefits to man attainable through the extension and the application of the discovery of atomic energy, are incalculable. It is unthinkable and treason to our forbears for us to fear a Russian A-bomb, mythical or real, and it is high time that we awaken to the fact that what Russia fears most is not our A-bomb. Because we have a secret weapon of which Russia is in deadly fear, a weapon which she can never reproduce; a secret weapon that is the hope of release and salvation to millions of ravaged people.

"Our secret weapon is our tradition of teamwork, of integrated effort, and mutual confidence. It is our partnership of engineer, management, skilled workman and risk capital, our great construction industry; it is our industrial genius, our frontiers, our Alaska. It is our mass production, our generations of skilled workmen, our atmosphere of competitive enterprise, our freedom and our Christian ethics."

Principles and Progress

The remarks of Carlton Proctor on principles for engineers were matched later in the convention by Arthur S. Horner, retiring A.G.C. president. Speaking of principles for A.G.C. contractors, he declared:

"We have become strong as a result of our adherence to principles. We have grown up. We are respected. We have achieved great prestige . . . I have faith in the future of the A.G.C. as a strong and dynamic force in the construction industry—an example of what adherence to principles can mean in the attainment of our goals."

Future Meetings of the A.G.C.

- Mid-year Board Meeting, Edgewater Beach Hotel, Chicago, September 14-16, 1953.
- 35th Annual Convention, Statler Hotel, Los Angeles, Mar. 1-4, 1954.

Street, MacLeod Take Office at Miami

- 14-member Executive Committee, Advisory Board Named

» C. P. STREET, McDevitt & Street Co., Charlotte, N. C., was installed as president of The Associated General Contractors of America and John MacLeod, Macco Corporation, Paramount, Calif., as vice president, at the 34th annual convention in Miami.

Past President William Muirhead, Muirhead Construction Co., Durham, N. C., was re-elected secretary-treasurer for this year.

The 1953 Executive Committee, as approved by the Board of Directors, and now numbering 14 instead of 12 due to a change in the by-laws, is as follows:

President Street; Vice President MacLeod; Division Chairmen Frank F. Burrows, Burlingame, Calif., (building), P. M. Thornton, Hancock, Mich., (highway) and C. W. Cunningham, Omaha, Neb. (heavy-railroad); Walter L. Couse, Detroit, Mich.; A. S. Horner, Denver, Col.; George C. Koss, Des Moines, Iowa; A. S. Macdonald, Tacoma, Wash.; Glen W. Maxon, Dayton, O.; F. L. Shackelford, Greenville, S. C.; Arthur H. Wells, Chicago, Ill.; W. Murray Werner, Shreveport, La., and D. W. Winkelman, Syracuse, N. Y.

New Advisory Board

The newly-elected directors installed at the convention were listed on page 59 of the February issue of THE CONSTRUCTOR. Members of the new Advisory Board are:

George H. Atkinson, South San Francisco, Calif.; Albert D. Blakeslee, New Haven, Conn.; Frank A. Barber, Baton Rouge, La.; Alex Brest, Jacksonville, Fla.; C. E. Cooke, Detroit, Mich.; D. H. Cox, Houston, Tex.; Morris E. DeWitt, Poplar Bluff, Mo.; N. K. Dickerson, Jr., Monroe, N. C.; C. B. Ford, Dyersburg, Tenn.; M. F. Gautier, San Francisco; H. H. Hall, East St. Louis, Ill.; Ira H. Hardin, Atlanta, Ga.; D. A. Harmon, Oklahoma City, Okla.; J. A. Henderson, Winona, Minn.; F. W. Heldenfels, Jr., Corpus Christi, Tex.; George Heller, Minneapolis, Minn., and V. N. Holderman, Columbus, O., and Carl B. Jansen, Pittsburgh, Pa.

Also, Thomas H. Joyce, Jr., Springfield, Ill.; M. B. Killian, San Antonio, Tex.; Carl E. Nelson, Logan, Utah; Carl W. Olson, Lincoln, Neb.; Walter W. Priester, Davenport, Iowa; C. R. Ralph, Topeka, Kan.; Leo P. Richardson, Detroit; Frank W. Robertson, Huntington, W. Va.; William Soule, Pensacola, Fla.; R. A. Smith, Los Angeles, Calif.; R. S. Ursprung, Cleveland, O.; John A. Volpe, Malden, Mass.; Arthur H. Wells, Chicago, Ill.; Marshall J. Wylie, Albuquerque, N. M., and John H. Sellen, Seattle.

This leaves two places open on the Advisory Board to be filled by the president at his discretion during the year, in conformity with the usual practice.

C. P. Street, center, 1953 president, is flanked by A. S. Horner, left, retiring president, and John MacLeod, 1953 vice president. Induction of the new officers took place during the concluding session of the four-day convention on Thursday, March 26.

Actions of 34th Annual A.G.C. Convention

Industrial Safety

The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, 1953, endorses the principle that the association's accident prevention program which has been carried out for more than a quarter of a century should continue to be expanded and improved.

The association, again, strongly recommends to its members that they continue to improve their planned programs to prevent accidents on their projects.

The association also expresses vigorous opposition to legislation by Congress for the supervision of industrial safety regulations, on other than federally financed projects, for the reasons that such legislation is an unwarranted assumption of authority vested in the states, and that the industry can carry out more effective safety measures on a voluntary basis.

Construction for National Defense

During periods of unsettled international conditions, the national defense is of paramount importance. Construction operations are basic to defense preparations, and such work continues as one of the industry's most important responsibilities.

During the defense program prior to World War II, during the entire war period, and during the subsequent defense program, the construction industry has mobilized immediately for the fast and economical construction of defense projects.

The increasing promptness and effectiveness with which this mobilization has become possible depends first on the familiarity of the governmental agencies with the tasks for which they are responsible, and second, on the familiarity of contracting organizations with the policies and personnel of the agencies. Much of this familiarity is gained through execution of civilian construction work.

The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, 1953, recommends to the President of the United States and the Congress that, during periods of unsettled international conditions, the agencies which have mobilized themselves and contracting organizations for necessary defense construction, or are in a position to do so promptly, should continue the administration of federal and federal-aid construction programs.

State Labor Laws

The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, expresses its opposition to any federal law which would impair or supersede labor legislation by the several states.

Prevailing Wage Scales

In order to conserve public funds, to combat inflationary pressures, and to avoid disruption of conditions in the construction industry, The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, 1953, again strongly urges that, in predetermining the minimum wages for federal construction projects, the Secretary of Labor:

1. Maintains the historic differentials which have been recognized between building construction and highway and heavy construction.

2. Gives realistic consideration to the wage scales which are actually prevailing in the locality.

For the same reasons, the association also recommends that federal agencies, undertaking construction work with their own forces or by contract, conform to the wage scales actually prevailing in the community.

Wage Stabilization

The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, 1953, endorses the action of the President of the United States in suspending wage and price controls, and expresses the conviction that the best interests of the nation's economy are served by the normal negotiations of management and labor which are free, insofar as possible, from governmental intervention and regulation.

The association finds that, generally, the wages paid in construction have increased commensurately with increases in the cost of living and productivity.

The association therefore recommends that members and chapters accept their responsibilities as representatives of the construction industry to cooperate with the national administration and the people of the United States in their efforts to stabilize the national economy by avoiding unwarranted increases in wages or fringe benefits which are detrimental to the national welfare.

Construction Industry Relationships

The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, 1953, expresses its opposition to S. 848, and similar proposals for a revised federal contract procedure, for the reasons that such legislation would cause unnecessary government regulation of business relationships in the construction industry, and would tend to increase the cost of public works construction.

The association continues to offer its cooperation to solve within the industry such problems of the relationships of general contractors with other segments of the industry as may arise.

Right of Judicial Review

The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, 1953, reaffirms the resolution adopted at its previous convention as follows:

The majority decision of the Supreme Court of the United States in the Wunderlich case, decided November 26, 1951, interpreting the "disputes clause" (Article 15) of the Standard Form of Government Contract to mean that the determination of a department head is final, and that there can be no recourse to the courts in disputes involving questions of fact unless fraud on the part of the government is alleged and proved, makes legislation mandatory by the Congress of the United States to prevent the destruction of the competitive contract method now prevailing throughout the construction industry.

The dissenting opinions recognize and warn that the majority decision has wide application as well as a devastating effect, granting the contracting officer the power of life and death over a private business, which permits him to act without fear of further administrative review by an independent government agency not involved in the dispute or judicial review by the courts.

The Associated General Contractors of America for the past several years has sought administrative action on the revision of the "disputes clause" (Article 15) to permit judicial review of all questions arising under a contract, all to no avail.

It is the sense of this convention that any decision by a contracting officer or head of a department should be subject to judicial review in order to guarantee that such decision is reasonable, made with due regard to the rights of both the contracting parties, and supported by the evidence upon which such decision was based.

Therefore, The Associated General Contractors of America urges the Congress of the United States to enact legislation conferring on the courts jurisdiction to review any decision by a contracting officer or head of a department that is unreasonable or unjust, or not supported by substantial evidence; and further, that any provision in any contract with the United States abridging the rights of the parties thereto to court review be declared null and void and that contractors' suits now pending in the courts which have not been finally adjudicated be safeguarded in this legislation.

Administration and Inspection of Construction Contracts

To assist in obtaining more uniform procedures for administration of contracts and inspection of projects, which would avoid delays presently encountered on municipal and other types of public works construction, The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, 1953, recommends that the administration and inspection functions be supervised by a competent engineer or by competent engineers in the same engineering department of the governmental unit.

Adequate Compensation for Engineers

Because the salaries paid to construction engineers employed by municipalities and many other governmental organizations are not sufficient to maintain sufficient staffs of competent and trained personnel necessary to design and administer construction programs in the most economical manner, The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, 1953, recommends that engineers administering such construction programs be paid salaries commensurate with their responsibilities and commensurate with salaries paid by private industry.

Construction by Contract

Because public funds are safeguarded when municipal and other public works projects are executed by contract, The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, 1953, recommends that public works contracts be awarded to the lowest responsible bidder after public advertisement. It further recommends that when governmental agencies undertake construction with their own forces that comprehensive and accurate cost records be available for public inspection.

Furnishing Materials and Equipment

Because maximum efficiency can be secured when complete responsibility for the construction of a project is centralized in a competent general contractor, The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, 1953, recommends to governmental agencies that all materials and equipment to be incorporated into the project be furnished by the contractor in accordance with the plans and specifications, except when special circumstances make it feasible for the government agency to furnish them.

Abnormal Hazards

With the objectives of reducing the number of contingencies which might confront contracting organizations and thereby conserving public funds, The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, 1953, recommends that governmental agencies assume the responsibility for damages during the execution of construction operations which are caused by flood, ice, earthquakes, acts of war, riot, or other disasters which are beyond the control of the contractor and which could not have been foreseen as a risk to be assumed by the contractor.

Highway Financing

The volume of traffic on the nation's highways and the hazards of travel have increased at a greater rate than the construction of safe, adequate facilities. Highway needs extend beyond state borders, and have a direct effect on interstate commerce.

In view of the fact that the federal government returns for highway construction use only approximately one-quarter of the funds collected in excise and gasoline taxes, The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, 1953, therefore strongly recommends to the President of the United States, to the Congress, and to the states that:

1. The federal government assume its proper responsibility for the nation's highway needs by increasing federal-aid returns to the states of not less than the total amount of funds collected in taxes from highway users.
2. The federal-aid highway construction program be administered through present channels.
3. There should be no diversion to other purposes of tax funds collected from highway users by any unit of government.

Public Recognition of Highway Needs

The Associated General Contractors of America, at its 34th annual convention in Miami, Florida, March 23-26, 1953, expresses its appreciation to the nation's newspapers, magazines, radio and television stations, to the many manufacturers, and to the various other organizations which have been performing the public service of calling attention to the serious need for a more safe and adequate highway system.

The association recommends that appropriate circulation of this resolution be made by the national association, by chapters and branches, and by the members to those individuals and organizations which have engaged in this public service project.

Valley Authorities

The 34th annual convention of The Associated General Contractors of America, held in Miami, Florida, March 23-26, 1953, reaffirms its opposition to valley authority type of legislation which constitutes a dangerous departure from our constitutional and democratic form of government and an insidious threat to our private enterprise system. It again recommends that development of resources should be carried out by existing government agencies whose activities are subject to control by our elected representatives in Congress and by the courts.

A.G.C. Committees Spark Industry Actions

- Wide Range of Contractor Problems Tackled in Miami Sessions

» THE WIDE RANGE of association activities undertaken on behalf of the construction industry was apparent in A.G.C. committee meetings held in conjunction with the 34th annual convention. In some 16 separate meetings, groups of contractors sought ways to improve relationships within the construction industry and with government units, and to re-affirm the contract method. A brief summary of the meetings follows:

Accident Prevention. Meetings were held of the Accident Prevention Committee, headed by H. B. Alexander, Harrisburg, Pa., and liaison groups of the A.G.C. Secretaries' and Managers' Council and safety engineers of the Associations of Casualty Insurers to discuss improved safety programs.

Mr. Alexander presented to the president the award for outstanding service to safety made to A.G.C. by the National Safety Council. A number of awards for outstanding safety records were made to A.G.C. members at the convention by the committee, and others were sent to chapters for local presentation.

Past accomplishments were reviewed, and possibilities for an expanded accident prevention program were recommended by the committee.

Apprenticeship. The continuation and expansion of apprentice and other programs which encourage qualified young men to enter the construction industry and provide for their proper training was recommended by the Apprenticeship Committee, headed by Fred Fisher, Houston, Tex.

An award to the manager whose chapter has an outstanding apprentice training program was made to Loy W. Duddlesten, of the Houston Chapter.

Contracts. Discussions and recommendations of a meeting of the Contract Forms and Specifications Committee were reported by George C. Loorz, Oakland, Calif., in the absence of Chairman George H. Atkinson, South San Francisco.

The committee recommended approval of a suggested revision of the standard form for private engineering construction, which had undergone no change since 1925, as developed by the A.S.C.E. and A.G.C.

It also recommended approval of a revision in the standard form of agreement between owner and contractor on a cost plus a fee basis which had been reviewed by committees of the A.G.C. and American Institute of Architects.

Substantial benefits to the government and the industry through improved specifications and contract administrative procedures were reported by committee task units with the Bureau of Reclamation, Navy Bureau of Yards and Docks, and Army Corps of Engineers.

Development of a standard form of contract for municipal engineering construction was also recommended as a project for committees of the A.G.C. and the American Public Works Association.

Bylaws. A recommendation was adopted that the association's Executive Committee be increased by two members to a total of 14, as recommended by the Governing Provisions Committee, headed by Past President M. W. Watson, Topeka, Kan. Because of continued increase in membership, the larger committee permits wider representation.

Labor. A day-long meeting during which 12 subjects embracing 20 items were discussed was held by the Labor Committee, headed by Arthur H. Wells, Chicago.

The committee met with John T. Dunlop, chairman of the National Joint Board for the Settlement of Jurisdictional Disputes, reported that the board has worked well, and recommended its renewal on March 31.

Three resolutions, which were subsequently adopted, were recommended with respect to contractors' responsibilities for wage stabilization, prevailing wage scales on federal projects, and opposition to any federal law which would impair or supersede state labor legislation.

The staff was commended for its work, and policies were adopted for its guidance in having stipulations filed by general and subcontractors with the jurisdictional board, and, if necessary, securing an amendment to the Taft-Hartley Act requiring mandatory injunctions in jurisdictional disputes.

Market Development. The intense competition between general contractors gives further assurance to the public that it will receive full value for its investment in construction, the Market Development Committee, headed by Fred J. Early, Jr., San Francisco, reported.

The committee reported its opinion that the government had acted wisely last month in removing controls over the start and continuation of construction projects, and saw no need for standby controls. It endorsed previously stated policies of the association with respect to economy in government public works programs, and expressed the opinion that private and other governmental programs would take up the slack caused by curtailment of federal construction.

It recommended that construction unions and contracting organizations take all possible steps to encourage industrial companies and public agencies to carry out their maintenance and repair work by contract. And it recommended that members, chapters and the national association encourage the advance planning of necessary public and private construction so that it can be designed effectively and undertaken when economically feasible.

Legislative. A comprehensive review of proposed legislation by Congress was made by the Legislative Committee, headed by Frank W. Robertson, Huntington, W. Va., at which it was reported that, although the 83rd Congress is not yet three months old, a total of 5,600 bills and resolutions have been introduced, of which 240 could have special significance to general contractors if acted upon.

Legislation proposed for permitting the right of judicial review of disputes arising out of federal construction and other contracts, for revising federal contract procedures with respect to subcontractors, and for federal accident prevention activities was reviewed by the committee, and resolutions restating association policy were adopted by the convention.

Many other items of legislation were considered and reported by the committee which reminded the convention of the association's policy of presenting information to appropriate Congressional committees on the ef-

fects of proposed legislation on the industry, of keeping members and chapters promptly and accurately informed of developments, and of leaving to members the expression of their own views to their own elected Senators and Representatives.

Membership. Continued growth of memberships in the national association to 6,292 on December 31, 1952, and continued increase in the number of chapters to 122, was reported by W. Murray Werner, Shreveport, La., chairman of the Membership Committee.

The Cashman Trophy for the most significant increase in membership during the year was awarded to the Virginia Branch, of which W. C. English, of Altavista, is president, and Herbert W. O'Grady, of Richmond, is executive secretary.

Public Relations

Progress made during the first five years of the association's coordinated public relations program was reviewed by the Public Relations Committee, headed by John MacLeod, Paramount, Calif. The program was originally adopted at a time when incoming President Street was committee chairman.

A meeting was also held with a liaison group of the A.G.C. Secretaries' and Managers' Council to discuss practical means by which the national association and chapters can cooperate to develop and expand chapter public relations programs.

The committee commended the staff for the progress made and urged continuation of an energetic program of public relations in all of its phases.

Joint Cooperative Committee

In connection with the convention were held meetings of the national joint cooperative committees which the A.G.C. maintains with the American Association of State Highway Officials; National Association of State Aviation Officials; Associated Equipment Distributors; Construction Industry Manufacturers Association; and Producers' Council.

Secretaries' and Managers' Council

A day-long meeting of the A.G.C. Secretaries' and Managers' Council was held to discuss means of perfecting chapter management and carrying out chapter programs more effectively.

Plans were approved for an annual institute to be held by members of chapter and branch national staffs for closer coordination and more effective carrying out of the association's program.

New officers of the council installed were: Robert Patten, managing director of the Carolinas Branch, Charlotte, who succeeded Earle W. Devalon, managing director of the Colorado Contractors Association, Denver, as council chairman; A. H. Harding, manager of the Portland (Ore.) Chapter, continues as vice-president in charge of Highway and Heavy Chapters; William C. Bowden, secretary of the Master Builders Association of Allegheny County, Pa., named vice-chairman in charge of Building Division; and Curtis Bell, managing director of the South Texas Chapter, Corpus Christi, council secretary.

WELLMAN *Williams Type*

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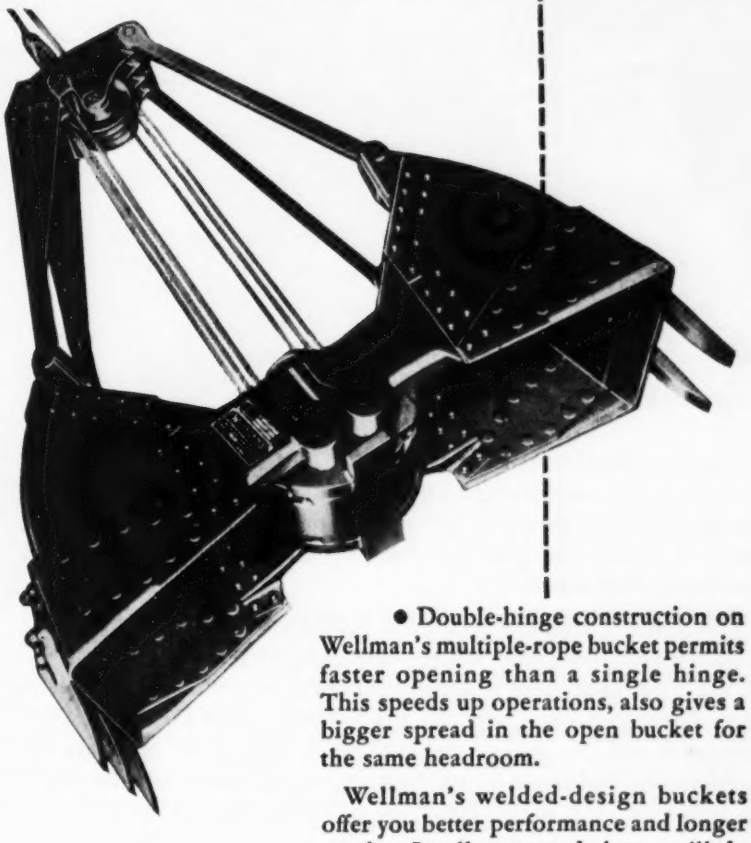

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Highway Officials Advised to Heed Maintenance by Contract

- Clark Urges Economies to Stretch the Road Dollar
- Possible Savings in Management and Methods Seen

» LETTING highway maintenance work by contract may well yield significant savings that could be applied to new construction, Deputy Commissioner A. C. Clark of the U. S. Bureau of Public Roads told delegates to the North Atlantic Association of State Highway Officials in Atlantic City last month.

The federal agency official pointed out that "more and more state highway departments have found that there is definitely a place for the contract method in maintenance operations" and that an increasing number of them are making awards wherever feasible. He cited that practice as being one way in which economies might be realized by state highway departments and asked the roads officials to candidly evaluate situations where the contract method might effect savings.

See article on how engineering design affects construction costs—Page 50

Comparing it with force account methods of construction and maintenance, Mr. Clark said, "No doubt all will agree that there are certain conditions under which each method is more economical than the other. It is not within the scope of this discussion to point out in detail the conditions that determine which method should be used in a particular case. The conditions applying to each individual job must be thoroughly studied before a proper decision can be made."

Consider All Costs Involved

He warned that all costs must be considered in such a comparison. "It is necessary to measure both methods by the same yardstick if we are to make a fair appraisal of their relative economy. Any comparison must be based upon the same quality and character of work and upon taking into consideration all applicable costs."

Speaking specifically of the need to compare contract method and the force account method on maintenance work, he said, "Any savings effected in maintenance operations will, of course, result directly in making additional funds available for construction.

"The fact that it has not been possible during the last decade to accomplish the rehabilitation of our highway systems at a pace equivalent to the rate of deterioration and obsolescence has resulted in an ever-increasing share of the highway revenues being required for maintenance with a steadily diminishing share being available for construction. . . . It is therefore imperative that every possible means of economizing in maintenance work without sacrifice of quality be found and put into effect."

(Last year, $1.7 billion was spent for highway maintenance, compared to $2.9 billion spent for construction.)

Dim Hope for Revenues

Mr. Clark made these points in a speech devoted to measures by which state highway officials can save money on their current programs. The prospects of obtaining highway revenues commensurate with the nation's road needs are dim, he said, and officials are faced with the task of stretching available funds to the maximum. Their combined efforts toward this end would make possible significant savings, he said.

Mr. Clark

Besides use of the contract method where justified, Mr. Clark advocated increasing the productivity of both men and machines in a number of ways as another method of getting more highways for the available money.

"The productivity of labor and equipment can, as shown by past experience, be increased by greater mechanization. . . . Thorough analysis of the various job operations may disclose time losses and inefficiencies that can be reduced or entirely overcome. New and improved methods, equipment, and materials can perhaps be developed or introduced into the work to effect savings. . . . The construction and maintenance engineers as well as the contracting industry should be encouraged to develop new and improved techniques that will effect economies rather than being insulated from policy-making officials by traditional practices or by quotations from specifications that may actually be in need of revision."

Mr. Clark pointed out that field engineers are in an ideal position to spot ways by which savings can be made and to heed specification changes the contractor might suggest to save money.

"The field men, by reason of their being in close contact with day-to-day operations are in a position to quickly recognize the need for revisions in designs and specifications and the advantages of improved operating procedures originating with the contractors," he said. (Note DeSimone's views on this point on Page 50)

Poor management is a principal cause of slow progress and, consequently, unnecessary construction costs, the BPR official claimed. "Whenever there is delay, there are almost certain to be increased costs," he said.

"This then may be a fruitful field for effecting savings that would be applicable in both contract work and force account work," he said.

Other economy measures which Mr. Clark recommended are the following:

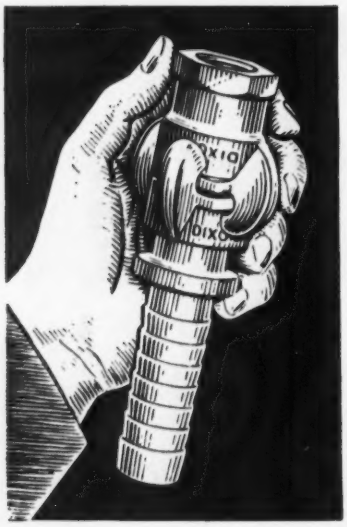
- The re-vamping of specifications to permit use of modern equipment, materials and methods.
- The unification of specifications for construction materials and equipment.
- The enforcement of safety measures on highway construction jobs.

Hits Diversity of Specs

"Lack of uniformity among geographical areas in specification requirements and lack of standardization on the minimum number of types and sizes of materials and equipment actually needed result in higher costs that are not readily apparent and therefore may be overlooked," he said.

He referred, as an example, to the 25 different types and grades of road oils, cutback asphalts and emulsified asphalts covered currently by highway specifications in various areas. Suppliers often service several areas and are thus required to produce and store all types and grades.

"It appears likely that considerable savings in asphalt costs could be effected by standardizing on fewer grades of asphalt with no doubt just as satisfactory results in the construction work."



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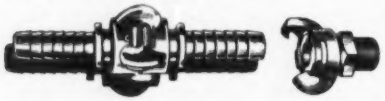

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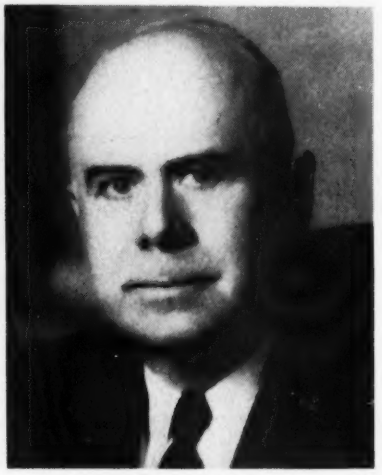
MacDonald Ties Up Career as BPR Chief

• Retires After 34 Years in Top Post—Du Pont Takes Over



Thomas H. MacDonald

» A LONG and productive government career came to an end this month when Thomas H. MacDonald, commissioner of the U. S. Bureau of Public Roads, stepped down after serving 34 years as head of that agency.

Mr. MacDonald, now 72 years old, has been the first and only chief of the economically strategic bureau from its inception. In that capacity he has been responsible for administration of federal highway funds since the beginning of federal participation in highway matters on a national scale. He has directed the planning of thousands of miles of highways and approved expenditures of billions of dollars in road construction.

Because he has been so intimately involved in federal aid to highway programs, a recounting of Mr. MacDonald's activities is in reality a history of the bureau.

At the time of his appointment to take charge of the Bureau of Public Roads in 1919, plans were just being developed for administering the Federal-Aid Road Act of 1916, which marks the beginning of federal assistance to the states for highway improvement and construction.

A Pioneer in Federal Aid

When he took office, the plan of state-federal cooperation was an untried venture. Highway experts are generally in agreement today that the comprehensive system of roads lacing the nation now is proof of the workability of such cooperation.

When Mr. MacDonald came to the BPR, there were no surfaced roads connecting the large cities. Industries were forced to locate along rail terminals, the farmer was isolated from his markets by routes made impassible in poor weather, and the vast tourist travel now known was practically nonexistent. The multi-billion-dollar highway transportation system of the nation has grown from infancy during the span of Mr. MacDonald's career as a federal public roads official.

Encouraged Highway Research

The BPR chief was instrumental in the establishment of the Highway Research Board in 1919 and has served as *ex officio* member of the executive committee since its first meeting. Highway research in materials and methods has made a great impact on road building during that period.

Other achievements during Mr. MacDonald's service for which he has been significantly responsible include development of standard road signs, agreement with the states on designation of U. S. highways, construction of many miles of national park and forest roads, construction of the Alaska Highway, and numerous standards on design and specifications. In the case of the latter, as well as in other matters, Mr. MacDonald has encouraged promotion of uniform standards by the American Association of State Highway Officials rather than by federal legislation.

Du Pont Is Top Highway Planner

Appointed to take Mr. MacDonald's place on April 1 was Francis V. Du Pont of Wilmington, Del. Mr. Du Pont has been recognized as one of the foremost administrators of public highways in America, a distinction won as an active member of the Delaware State Highway Department for 27 years. He served as chairman of that body for 23 years, during which period he helped develop the state's public road system into one of the most modern in the country.

Mr. Du Pont was responsible for directing the engineering, financing and start of construction on the Delaware Memorial Bridge, the fifth long-

est suspension span bridge in the world, completed last year.

The American Association of State Highway Officials awarded Mr. Du Pont a citation in 1948 for his 25 years of meritorious service in the highway field.

He is a 1917 graduate of the Massachusetts Institute of Technology. In addition to his highway activities, Mr. Du Pont has been treasurer of the Hotels Waldorf-Astoria in New York City, Bellevue-Stratford in Philadelphia, and the Willard in Washington, D. C.

Highway Construction Notes

• A proposal by private interests to build three toll turnpikes in Virginia was spiked last month when the state highway commission decided it could not accept stock in the venture. The roads would have been built under supervision of the highway department and after completion turned over to the state for operation.

• Congressman Dingell of Michigan has introduced a bill which would provide 100,000 miles of toll highways intersecting the nation east and west and north and south and skirting the coasts and borders.

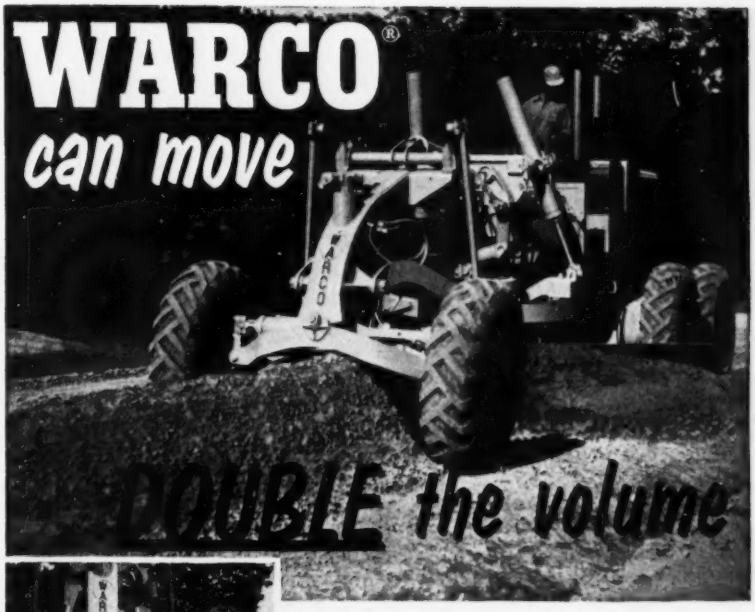
• Minnesota's House of Representatives has approved an increased bond debt limit for the Minneapolis-St. Paul airports commission to allow the expenditure of from $15 million to $30 million for construction and improvements at Wold-Chamberlain Field.

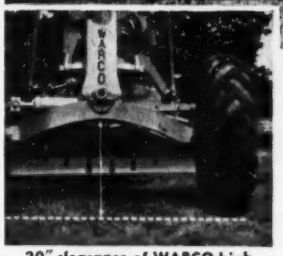
• A Federal Civil Defense Administration manual, "Utilization and Control of Streets and Highways in Civil Defense Emergencies," has been released. It was reviewed by an advisory panel of which George C. Koss, Des Moines A.G.C. contractor, is a member.

Book Review

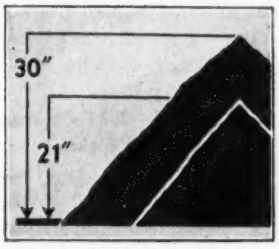
Welded Highway Bridge Design, edited by Prof. James G. Clark, University of Illinois, published by James F. Lincoln Arc Welding Foundation, Cleveland 17, Ohio. $2.00.

A book of new and important ideas contained in designs submitted in the Lincoln Foundation's highway bridge design contest. Original drawings of the designs presented with authors' discussions. All are for an all-welded, two-lane through highway bridge with a 250-ft. span.





30" clearance of WARCO high-arched front end . . . 21" is median clearance of all other graders.



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Model 4D-85 General Duty 85 H. P., extra power for heavier loads.

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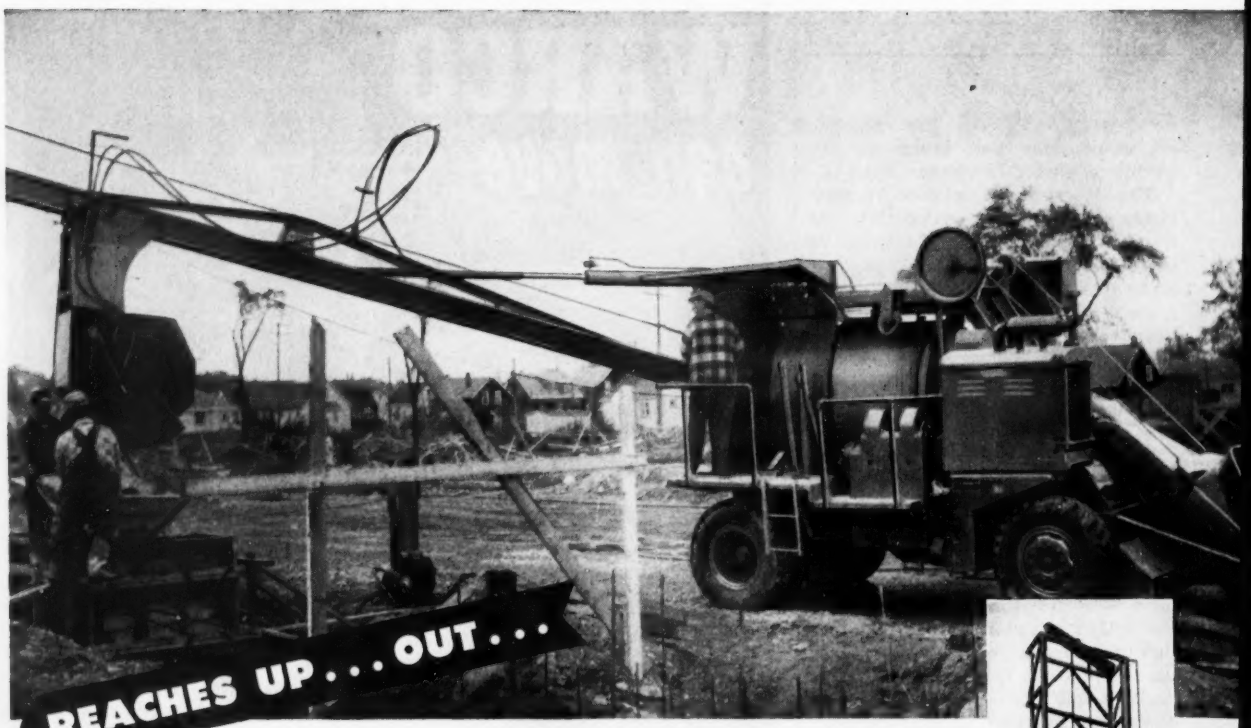

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mixes and pours concrete for buildings, pilings, bridges and culverts . . . paves highway and airport strips . . . batches into trucks . . . discharges concrete into overhead forms, hoppers, chutes. It's never "grounded". Elevating boom reaches up and out 60° . . . bucket discharges at a height of 21 feet (higher with special boom). Power-controlled boom also swings in a 160° arc . . . is self-locking, holds in any position for accurate spotting and discharge.

CONTROLLED-DISCHARGE BUCKET

dumps anywhere along the 25-foot boom. Clamshell-type door on bucket is hydraulically operated . . . can be opened or closed at any time for gradual discharge. Water-level capacity is 24 cu. ft. That's more than ample to hold the full 16 cu. ft. batch of concrete, plus 10% overload.

48½-FT. DISCHARGE HEIGHT WITH TOWER

On the Koehring 16-E, the elevating boom is interchangeable with a 40 or 60-foot tower . . . gives you discharge heights up to 48½ feet for pouring high columns, piers, decks and floors. Hoist bucket discharges automatically into 40 cu. ft. overhead hopper. Tower is raised, or lowered into carrying position, by the same hydraulic ram used on elevated boom.

This versatile Koehring 16-E easily mixes and distributes up to 50 cu. yds. of concrete per hour. Also check its 6 m.p.h. rubber-tired mobility. Ask, too about Koehring 34-E *twinbatch*.

SEE YOUR KOEHRING DISTRIBUTOR FOR COMPLETE FACTS

KOEHRING *twinbatch*® PAVERS

FINISHERS • CONSTRUCTION MIXERS • CRANES • EXCAVATORS • DUMPTORS® • MUD-JACKS®

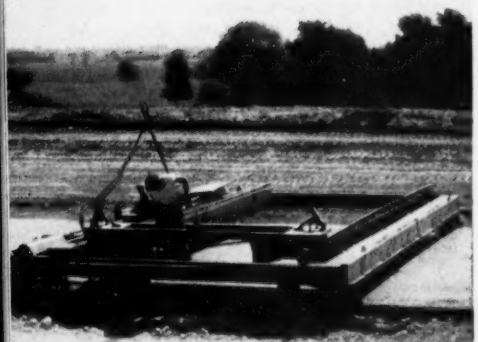
KOEHRING Company, Milwaukee 16, Wisconsin *Subsidiaries . . .*

BUCKET TRAVELS 183 FT. PER MIN.

on horizontal boom (92' per min. elevated) . . . pours controlled batch anywhere along boom. Simultaneous bucket travel and boom swing speed distribution with 16-E.

BIG-PRODUCTION 34-E *twinbatch*

hits top output of 86.7 batches an hour (60-second mixing time). This reserve production capacity picks up lost time from normal delays, assures fast schedules.



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Koehring Longitudinal Finisher can operate at almost twice the speed of a 34-E paver, produce mechanically-accurate slabs, 8 to 30', with uniform crown transitions.

. . . JOHNSON • PARSONS • KWIK-MIX

12.6 m.p.h. TRENCHMOBILE® on rubber tires

makes fast, self-powered moves between jobs . . . excavates for mains and service connections . . . digs 8 in. or 12 in. wide, 5 ft. deep. Digging feeds range up to 20 ft. per min. Telescopic ladder boom with hinged crumber undercuts sidewalks, makes vertical set-ins . . . saves hand cleanup. Buckets on this Parsons heavy-duty Model 88 have easy-in, easy-out "Tap-In" teeth, self sharpening and quickly replaceable. Hydraulically operated backfill blade optional. Other models: 2 wheel-types, 3 ladder-types full crawler mounted.

PARSONS Company, Newton, Iowa *(Koehring Subsidiary)*

LO-BIN Batcher holds 8, 20, or 30 tons

. . . has low charging height. 8-ton Johnson Lo-Bin Trolley Batcher is only 7½ ft. high; flared extension panels give 20-ton capacity at 8½ ft. height, 30 tons at 9½ ft. Has 2, 3 or 4 compartments, up to 4 weigh beams, 22 or 44 cu. ft. weigh hoppers . . . also can be arranged for 2 or 3 aggregates and 1 bulk cement compartment. Efficiently serves 28-S, 16-S, 11-S, 6-S mixers. Quickly dismantled, easily moved on dump truck. Optional: wheels, tires, tow bar. See your Johnson distributor, too, for mix plants, buckets, bins, silos.

C. S. JOHNSON Company, Champaign, Ill. *(Koehring Subsidiary)*

Y43

Construction is Completed on England's Highest Dam

$5.8-Million Structure Assures Birmingham of Water Supply

By John Grindrod

Editor's Note: Although the project described in the following article may not seem large, compared with the great dams of the Northwest, it is the highest dam in England and represents one of the most ambitious undertakings of its type to be completed in that country. This story of the structure's unique construction features and the problems encountered in its completion was written for THE CONSTRUCTOR *by John Grindrod, a competent English journalist.*

» HIGHER than any other in Great Britain, forming an artificial lake more than 4 mi. in length and impounding 10.6 million gallons of water, the Claerwen Dam was officially opened recently by Her Majesty, Queen Elizabeth II. It is the latest chapter in the development of a reliable water supply for Birmingham, second largest city in the United Kingdom. The new dam cost only about $5.8 million, but it will more than double the existing storage capacity for this industrial city of over 1.2 million persons.

Construction Began in 1946

Although plans have been in the making for some time, it was not until 1946 that construction was possible at the site on the Elan River 70 mi. from Birmingham. Shortages in materials and manpower have hampered the project from time, as well as severe weather, all conditions which American contractors can sympathize with. Edmund Nuttall, Sons and Co. of London held the general contract.

The completed facility is a concrete gravity structure, 1,166 ft. long, 251 ft. high overall, and curved in plan to a 2,000-ft. radius. The main body consists of 23 radial blocks, the connecting joints being made watertight by continuous vertical copper strips. Incorporated in the structure are two inspection galleries.

Faced with Masonry Blocks

The dam is faced below water on the upstream side with Staffordshire engineering bricks and on the upper part and downstream side with gritstone masonry quarried in South Wales and Derbyshire.

The concrete construction of the Claerwen Dam is in contrast to the masonry construction of other dams in the Elan valley. It was to harmonize its final appearance with earlier works and local surroundings that the designers decided to face it with gritstone blocks, averaging 9 in. in thickness. The Staffordshire engineering blocks used to face the upstream side below surface were 13½ in. thick.

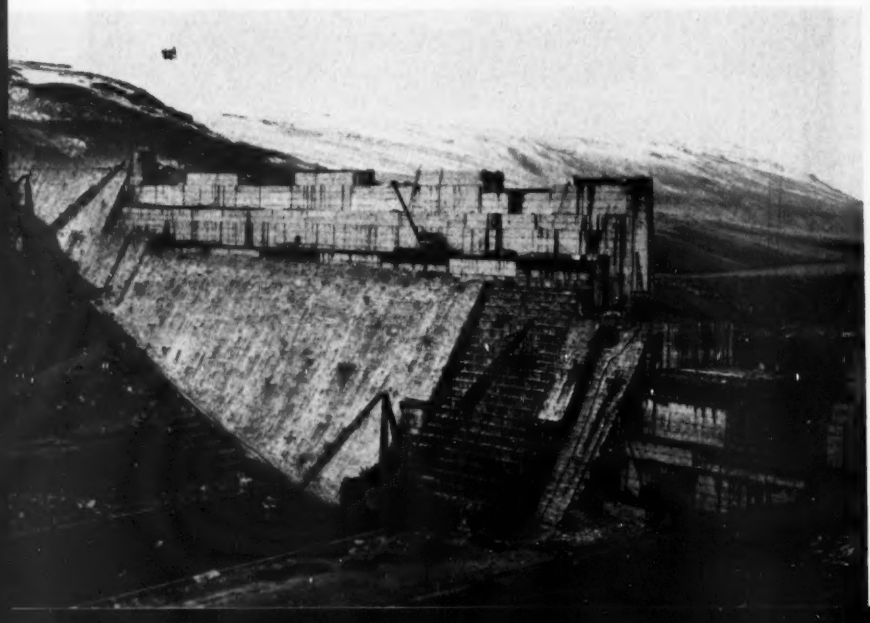
With foundations resting on a dense shale formation, 180 ft. at its broadest, the dam is carried 10 to 15 ft. into sound rock at its downstream toe and is also benched into the rock in horizontal steps up both sides of the valley. The excavation for the bottom of the dam slopes downwards in an upstream direction at a gradient of 1 in 24. At the base of the upstream face there is a cut-off trench of 15 ft. maximum width and depth below the level of the main foundations. Due to the fall in the valley bottom, excavations at the upstream face had to be taken generally to a depth of from 40 to 50 ft. to find a level corresponding to the base of the downstream face. At one point on the west bank side a maximum depth of 75 ft. had to be excavated. To make sure that the foundation rock below the cut-off trench bottom was watertight, it was drilled to a depth of 50 ft. or more, and cement grout was injected under pressure, thereby sealing any fissures in the rock.

The upper central works of the dam consist of a spillweir of six elliptical arches, each of 40 ft. span, on either side of a 60-ft. central span. The crest level is 6 in. lower under this central arch than under the others so that normal overflow takes place only at this point.

Design of Crest

Spilling over the central crest, the overflow water passes down the face of the dam which, in this section, is built in a series of steps between substantial buttresses. The latter rise up from two valve houses, built in masonry, into the toe of the dam. On reaching the base of the dam the water is guided into the central stilling pool by training walls. The stilling pool, which takes the normal flow as well as the flood water, is provided with a guage basin and measuring weir, through which the water passes before reaching the original river course.

Longitudinally, the dam is divided into 23 radial blocks, the concrete in alternate blocks being brought up four weeks in advance of that in the closer blocks to assist in cooling the large



Claerwen Dam as it looked under construction December 1951. Note method of building by radial blocks, each of which was given a four-week cooling period. Big steps forming center section of face will break force of water flowing over center crest, which is set 6 in. lower than others.

Over-all view of the dam substantially completed. A 12-ft. wide roadway and sidewalks run across the top. The structure is faced with native stone to harmonize with earlier dams in the valley and the surroundings. Photos by Central Press Photos, London.

mass. The joints between the blocks are made water-tight by continuous vertical copper strips.

Incorporated into the dam are two inspection galleries. One runs horizontally near the top while the other follows the contour of the valley bottom in a series of steps. The latter gives access to the valve chambers in the heart of the dam.

Also incorporated in the dam are concrete-lined steel pipes up to 4 ft. diameter, through which water to supplement the Birmingham supply is taken as required. These draw off the water from the reservoir at two pairs of intakes, at 1,048.6 ft. and 1,064.9 ft. elevation respectively.

Aggregate Used Up to 6 in.

For the large mass of concrete constituting the body of the Claerwen Dam, 7:1 concrete with aggregate up to 6 in. in size was used. This was also used for the concrete backing to the masonry on the downstream face. For filling in the cut-off trench 5:1 concrete was used, while 4:1 concrete was applied as backing to the masonry and brickwork on the upstream face.

Because no suitable quality of stone for concrete was available near to the construction site, it was necessary to transport it about 3 mi. Very hard quartzite rock was hewn at three quarry faces. The stone was carted by lorry in lump form from the quarry to the main site for crushing and screening. To make this possible a mile of new access road and two bridges had to be constructed. Most of the sand was brought from the Severn Valley, a distance of over 70 mi. by road while the special "low heat" Portland cement was transported by special rail containers in bulk to the nearest railroad station and brought the remaining 10 mi. to the site by lorry.

The concrete ingredients were weighbatched and mixed at a central plant producing 5-ton batches. The prepared concrete was poured at an average rate of over 5,000 tons per week over long periods, the maximum quantity actually placed in 24 hours being 2,300 tons. Concrete was delivered from the mixing plant by two electric 10-ton Henderson Cableways of 1,370-ft. span. Each of these had fixed 80-ft. headmasts at one end and counter-balanced tailmasts traveling on a radial tract at the opposite end. The two cableways gave access to the whole main foundation area.

Severe weather and shortages of material at times hampered the job. Timber and steel, particularly, were in short supply. To cut down the use of timber, formwork was made up on the site from water tank plates. Prestressed concrete was used for the bridge arches and largely eliminated the use of steel reinforcing bars. A shortage of stonemasons in the British quarrying industry delayed delivery of facing stone. After prolonged negotiations with government departments and the trade unions, arrangements were made to recruit stonemasons in Italy to work in the South Wales quarries and at the dam site.

Diversion Procedure Followed

Construction procedure involved the diversion of the river into a bypass channel 820 feet long during the building of the central portion of the dam. This was excavated to the east of the original river bed. Temporary dams were built near the upstream and downstream ends of the diversion, but these were removed when work on the central block had been taken to above flood level. At the same time the upstream end of the diversion channel was closed by a third temporary dam. The river then passed through the completed work by way of two scour pipe mains 3-ft. in diameter. One of the permanent 12-ft. access tunnels was also left open through the dam to accommodate floods.

When the dam across the diversion channel was completed, the upstream end of the access tunnel was plugged with concrete and grouted.

Foreign Labor Imported

Other outside labour besides the stonemasons from Italy had to be recruited. Men were recruited from the Polish Resettlement Corps and from Ireland and other parts of Great Britain. The maximum labour employed by the contractors totalled some 370 men, including an engineering and clerical staff of 30.

Quantities of materials used in the construction of the dam included $1\frac{1}{4}$ million bricks, $\frac{1}{2}$ million tons of crushed stone, 200,000 tons of sand, 70,000 tons of cement and 18,500 tons of masonry. An electric generating station of 1500 h.p. capacity was installed to provide operating power for the plant.

There's more to tractors than meets the eye . . .

The real "pay-off" value of any tractor to its owner is how it measures up to the standards set by today's modern production methods.

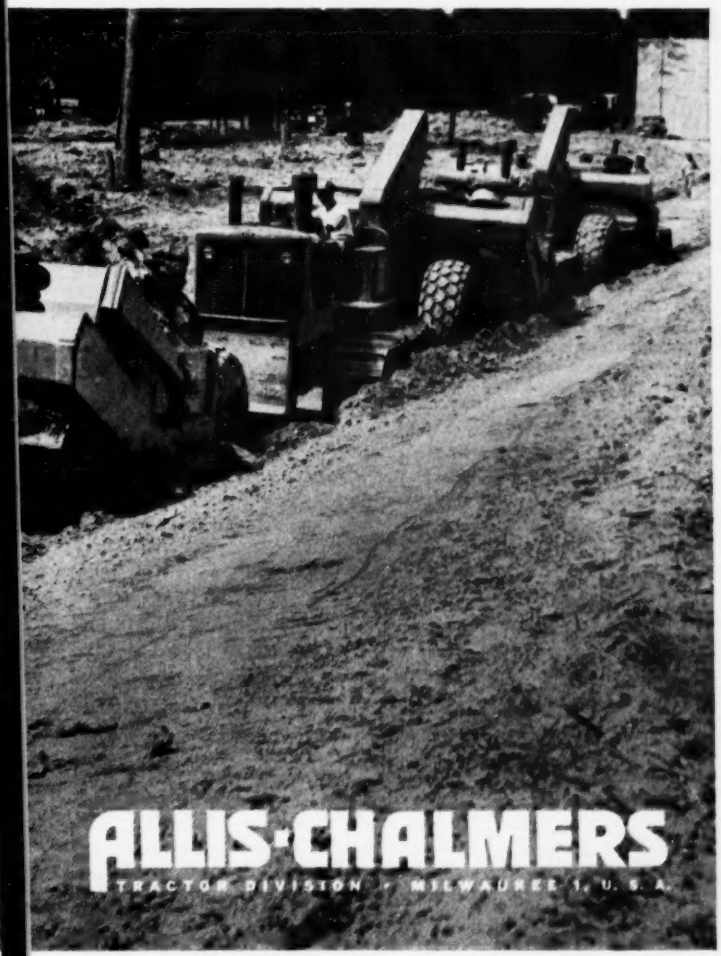
To meet these needs, Allis-Chalmers started from scratch and built *a line of tractors with a future.* Thousands now have been tested and proved on the toughest proving ground of them all, actual jobs, and they have more than measured up to expectations. Owners have found that these tractors set new standards of performance . . . that they give greater output with less down time . . . plus more profit, whether pulling, pushing, digging or dozing. Operators have discovered new ease and comfort in operation, too; and mechanics say these are the easiest-to-service tractors that they have ever worked on.

Yes, the "family circle" of users of Allis-Chalmers tractors is growing constantly. Many users who bought their first Allis-Chalmers tractor only a few years ago now have fleets of them, and many others who operate only one or two tractors have become Allis-Chalmers boosters.

This acceptance is the springboard behind a big plant expansion at Springfield, Illinois, which will enable Allis-Chalmers to meet *your* future needs. See your nearby Allis-Chalmers dealer now for the inside facts on pace-setting tractors that measure up to modern production methods.

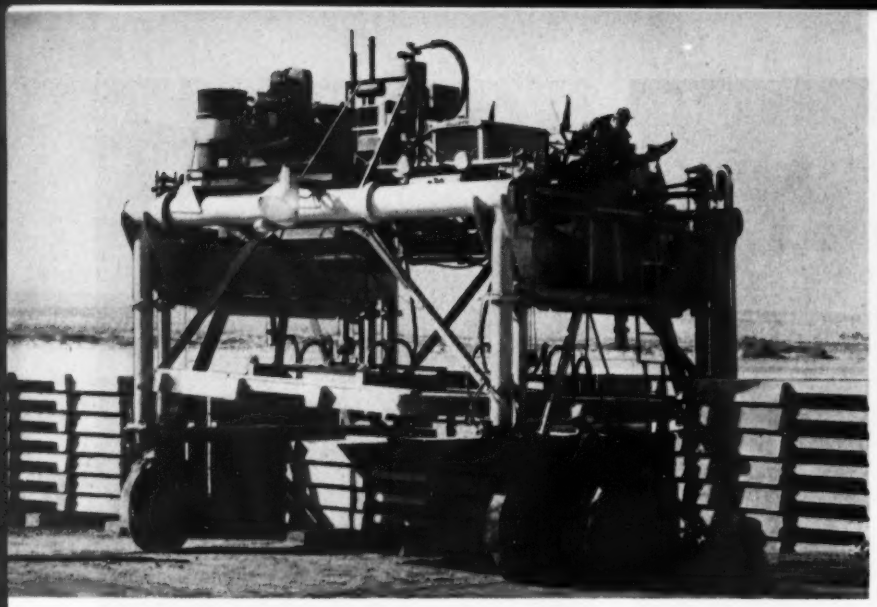
From haul road to highway to heavy construction . . . wherever big production is essential to the job, this big HD-15 has more than proved its worth. With 109 drawbar hp. and 27,850 lb. weight, it works quickly, efficiently as a dozer, tractor-shovel, puller or pusher.

This 72 drawbar hp., 18,800-lb. HD-9 is making friends in every field because its power and weight make it ideal for dozens of today's jobs. And, operators can gain up to 25 percent more production on short dozing jobs because they can go from any forward to any reverse speed with just one shift.



The 40 drawbar hp., 11,250-lb. HD-5 is a versatile jack-of-all-trades for fleet owners as well as one-man operations . . . with hydraulically controlled Tracto-Shovel, it's equally useful loading bulk materials, dozing, digging basements, dozens of other jobs.

Here's real tractor teamwork . . . four HD-20's in a "train" — three pulling scrapers, one pushing — all working together for big production. With torque converter drive, they synchronize speeds at contact . . . automatically load at the fastest speed that job conditions permit, with less strain on operators and equipment. With 175 engine hp. and 41,000 lb. weight, the HD-20 is today's new yardstick of crawler tractor performance.



"The Monster" Totes and Stacks Pre-Cast Concrete Slabs on Military Building Job

» APTLY nicknamed "The Monster" the overgrown version of a lumber carrier pictured above is toting 1½- to 4-ton concrete slabs being poured for use in 110 structures on a California Marine Corps camp.

The Conveyor Co. of Los Angeles designed the carrier for a joint venture contracting firm, Twaits-Morrison-Knudsen-Macco, which holds the general building contract on the $15-million project at Twenty-Nine Palms. The contractors wanted a machine capable of handling some 5,000 roof slabs of pre-cast reinforced concrete. "The Monster" strips the forms and transports the slabs with ease to wherever they are needed on the 550-acre building site.

Starting with a Hyster CP 116 straddle truck, the Los Angeles engineering firm widened the vehicle an additional 5½ ft. to give a 15-ft. inside width. Also, the road clearance was increased from 6½ ft. to 12 ft. which enables the unique rig to stack the roof slabs 7 ft. high for curing with 2 by 4's between each slab. To operate the two 3-ton electric hoists installed on "the monster," a 10 KVA power generator was then added.

Aerial view of the construction area reveals size of the project on which 110 barracks and other buildings are going up now. At stage pictured here, roof slabs are being poured and stacked. Mixing plant and cement silo, as well as "The Monster," are Conveyco equipment.

Given Hydraulic Power Steering

Hydraulic power steering was also needed for easier handling under heavy loads. In spite of these major changes, the straddle truck can be reduced to its original size and form by removing the extras added to do this particular job.

Left: Driver, sitting high on "The Monster," gets signals as the made-over straddle truck lowers pre-cast concrete slab to curing stack.

The sequence of operation in which the strange vehicle takes part consists of stripping the slab from the form, then transporting and stacking it in the curing area, where after an air dry of about 14 days, they can be delivered to the individual buildings under construction. There will be some 5,000 roof slabs used on the project.

Stock Piling Speeded Up

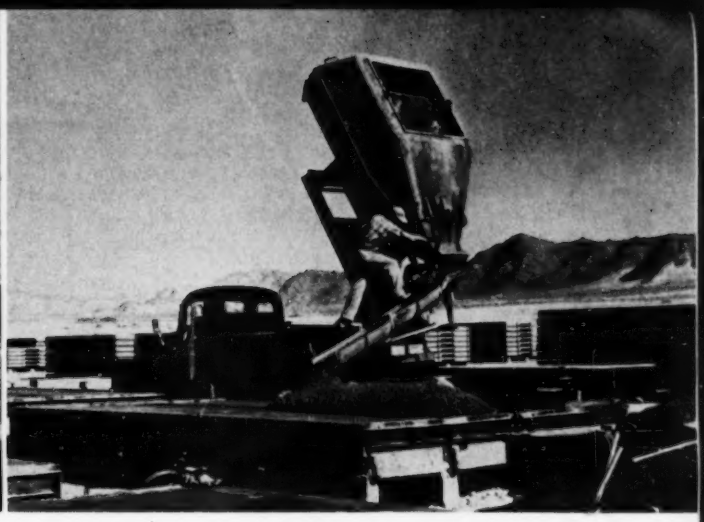
Stripping the forms and stock piling has been reduced to an 8- to 10-minute cycle, which is considered close to top efficiency. Only one slab can be carried at a time.

The vehicle is equipped with two patented vacuum gripping units supplied by the C. D. Wailes Corp. of Los Angeles. One-inch strips of rubber around the bottom edge of the two gripping pads permit a suction grip to the slab of about 10 psi when under vacuum. The two pad units have an aggregate gripping power of about 10,000 lbs. Each pad is fastened to a 3-ton electric hoist suspended by trolleys from a beam above.

Positioning Made Possible

By means of hydraulic cylinders connected direct to the hoists, each can be moved laterally as required to position centrally on the slab. The longitudinal positions are fixed, each gripping the slab about the center of the forward and rear halves.

Treatment of the forms is necessary to facilitate stripping from the concrete. Before pouring the slabs, the forms are sprayed with anti-bond compound to reduce cohension. An air vibrating screed is used to assure uniform compaction. Slabs are then subjected to live steam curing for about 13 hours and then stripped on an 18- to 20-hour schedule.

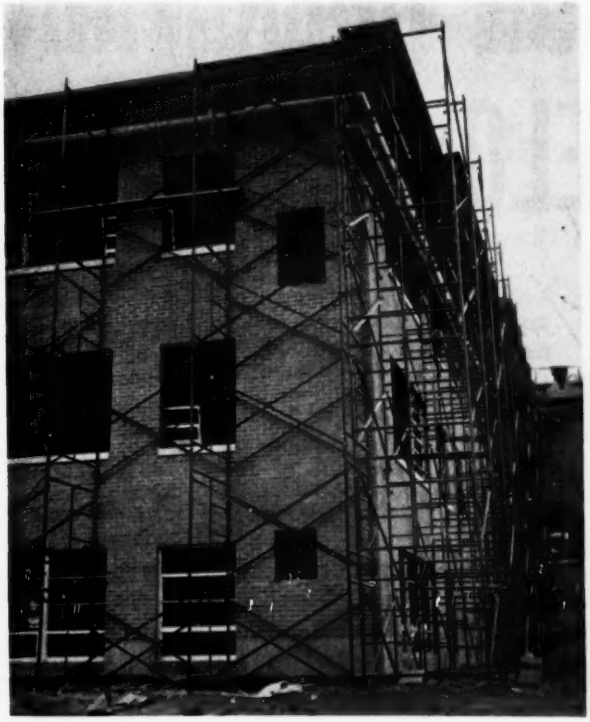


Above:
Assembly line techniques were employed by the contractor on the project. Here workers prepare forms with coating to prevent bond and put steel reinforcing in place for next pour.

Right:
A line of forms is poured. Electric screed and vibrator were used to insure compaction. Some 5,000 roof slabs were poured on the $15-million California project.

Contractor Speeds Job with Scaffolding

Hagstrom Construction Co. of St. Paul laid 93,000 face brick, 10,000 common brick and 29,000 back-up and salt glass tiles in five weeks on the structure pictured below. The quick job was possible because of a stretch of good working weather and the wise use of scaffolding. The contractor girdled the 600-ft. perimeter of the building with Waco sectional scaffolding for his crew of 20 bricklayers to work on, and ran it up to 42 ft. to complete brickwork on the $410,000 building, a county home project in Waverly, Iowa.



Webb Builds Town for 7,000

» A 3,000-ACRE cactus patch near Tiger, Ariz., will soon be turned into a construction site for a city which may house 7,000 people and become the state's seventh biggest community.

The Del E. Webb Construction Co., A.G.C., Phoenix, has a contract to build, own and operate a complete community which will provide housing for workers at the newly developed San Manuel ore works. The project is expected to cost $20 million.

The city, as yet unnamed, is being planned in stages. The initial phase of community development now underway includes homes, stores, utilities, schools, civic buildings, parks, hospital, airport and other such facilities.

A $184-million U. S. contract to buy copper and molybdenum and a $94-million RFC loan to the San Manuel Corp. for development of the mining area has sparked the Webb project.

* * *

- A Canadian contractor is completing work on a six-story concrete building for the Army under unusually adverse conditions. About 75% of the concrete pours were made under a portable roof section during heavy rains. During the period when 11,000 cu. yds. were poured, no time was lost in spite of a 90-in. rainfall. The site, near Whittier, Alaska, averages a rainfall of 183 in. annually and 23 ft. of snow. The $6-million structure contains everything necessary for the Army contingent to be housed there—squad rooms, mess hall, classrooms, recreational facilities, stores, hospital, bank, library and rifle ranges.

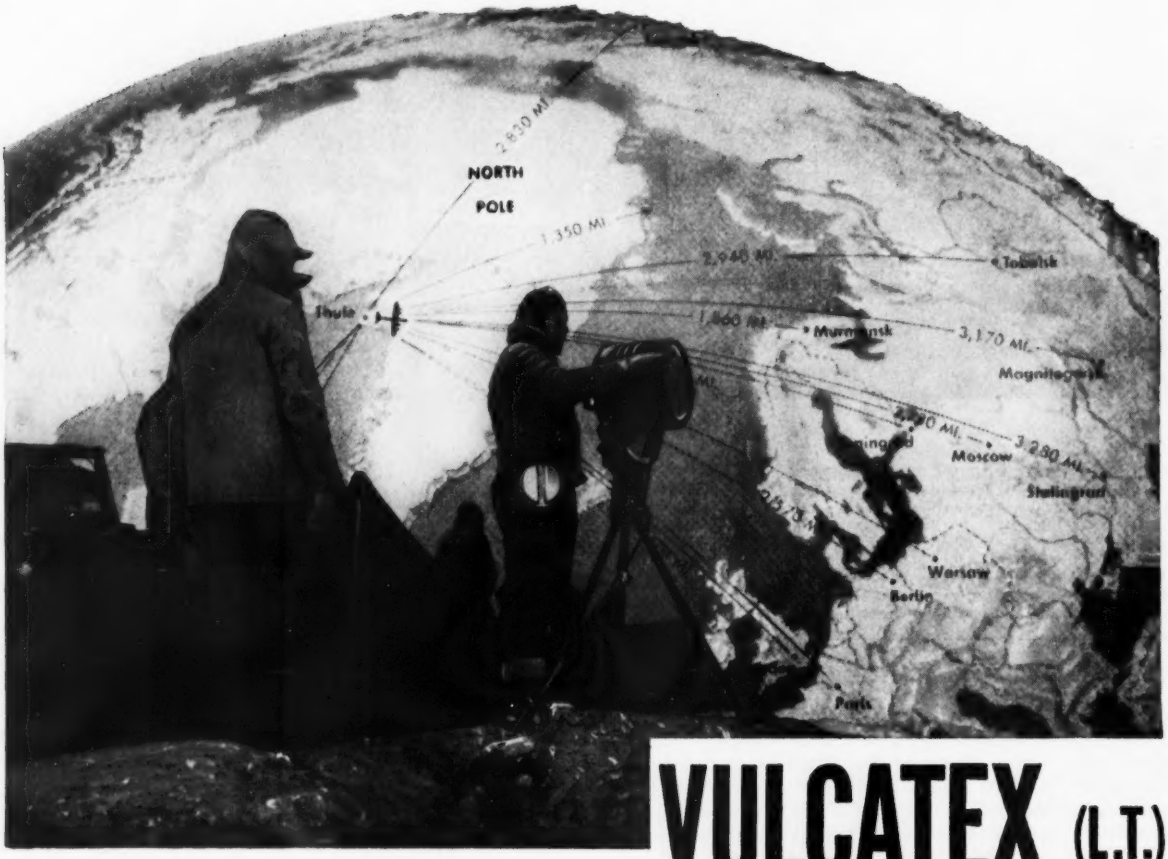
- Rhode Island has a new law authorizing creation of a privately financed and operated credit corporation to stimulate industrial expansion in the state by making capital available for construction of new plants.

- The Building Research Advisory Board, Washington, D. C., has a full committee working on the problem of condensation control in buildings. The group expects to explore such matters involved as venting walls, design and materials, flat roofs, and qualities of paint.

New Shopping Centers

Construction will soon begin on a 68-store shopping center for a Philadelphia suburb. Located on 40 acres of land, the development will contain about 320,000 sq. ft. of shops and parking for 4,000 cars.

A $2.5 million center for Hicksville, a New York suburb, will be completed this year. Some 30 stores comprise the shopping area.



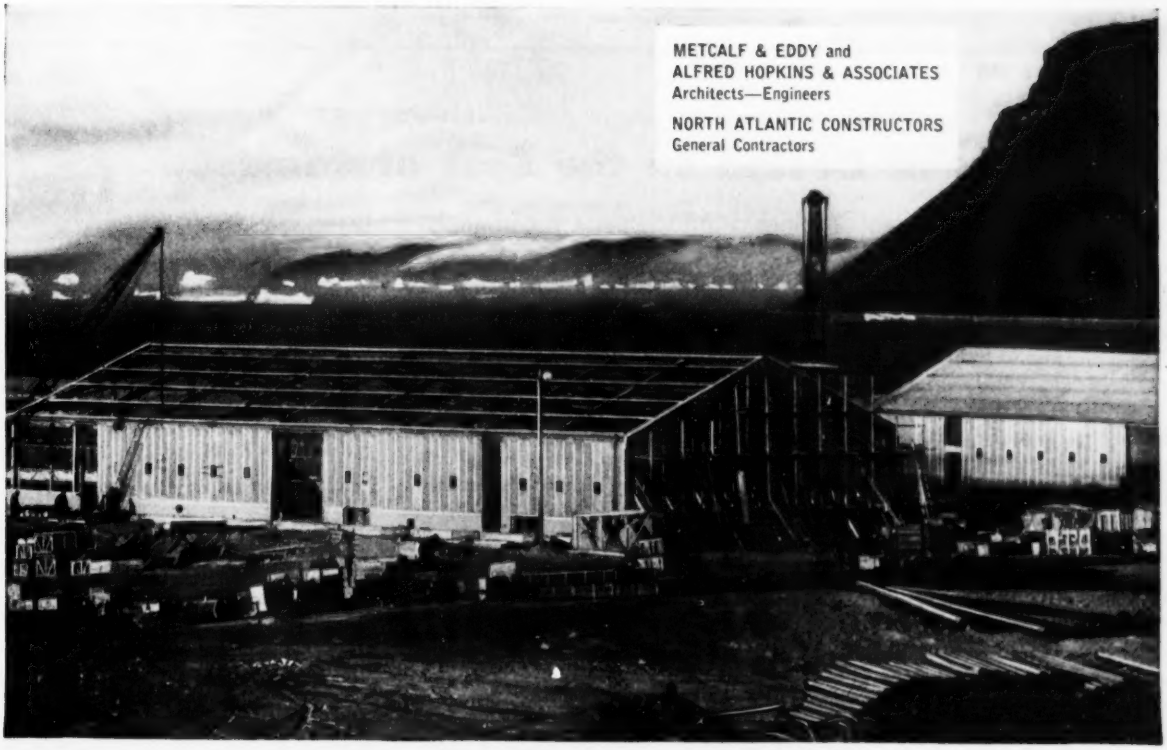
VULCATEX (L.T.)

OUT COLD ON OPERATION 60 DEGREES BELOW ZERO

Through the announcement of the Defense department the public now knows about operation "Blue Jay" only 900 miles from the North Pole. This modern engineering miracle is a full scale year round bomber base. Temperatures of minus 60° F are common and winds drive rain or snow against the structures at 150 miles per hour. In such cold even rubber and steel become brittle.

The A. C. Horn Company Inc. has the honor of having supplied over 40,000 gallons of its special low temperature Vulcatex Elastic Caulking Compound. This was used in the joints and between the panels of the many pre-fabricated structures for water-tight, air-tight seals.

Operation "Blue Jay" in spite of the inhuman cold is now described



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The Effect of Design on the Cost of Construction

• Top-Notch Panel Tackles Management Problem

In an age in which financing of a project is a chief problem, cutting costs becomes a consuming concern of construction management. Now, more than ever, a construction undertaking calls for closer cooperation between designer and contractor so that savings may be made wherever possible, from planning to completion.

The builder, given a set of blueprints, sometimes wishes that he could have had a hand in their preparation. It is not easy to remain silent when job conditions indicate that economies might be realized by use of methods or materials other than those specified. At such times, it is good to have an area of give-and-take in which designer and builder may make re-evaluations together, without fear of losing prestige on either hand. This happens frequently in the construction industry wherein all concerned must team up to battle the unpredictables that arise. The difficulties that are thus overcome by mutual assault and the economies that result indicate the adaptability of fine minds.

Several months ago, four prominent leaders in the construction industry formed a panel at the Centennial of Engineering in Chicago to discuss the designer's responsibility in this issue—the problem of cutting costs. The remarks of two of the speakers are condensed here for the common sense recommendations they contain. Condensations of the other two speakers' thoughts will follow in another issue of THE CONSTRUCTOR.

Ralph E. DeSimone, *board chairman, Merritt-Chapman & Scott Overseas, Inc., New York City.*

» IT IS to the interest of everyone involved on a construction project—engineer, contractor and owner—to keep costs down. The client's interest is basic but there is a long-range incentive for the reputable contractor to consider. The lower that costs can be kept, the greater is the encouragement to others considering construction programs.

Engineering design affects construction costs at two different stages: (1) on the drafting board where costs are written indelibly into the plans and specifications and (2) on the job where variables arise to challenge original plans and where designers, if they will, can materially cut costs by adjusting to the unforeseen conditions.

Contractors' Influence on Design

In the first stage, the contractor has no voice whatsoever. Usually, he must accept the engineer's plans as complete. In other instances contractors are invited to review the design and offer friendly criticism before bids are invited. This is an excellent procedure and no indication of weakness on the part of the designer. Many contractors have competent engineers and supervisors to appraise the design constructively and suggest ways of adapting it to economical methods of construction in the field. The designer is thus encouraged to review his job, to think about the construction problems involved, and to design accordingly.

Folly in Original Designs

Designs can be costly. For example, on one proposed bridge with multiple two-shaft piers, the batters on the pier shafts were designed differently for every pier. When one realizes that one of the most important items of cost on any construction contract is the making, placing and stripping of concrete forms, it is easy to see how the added cost of readapting forms to the different batters could run up to a significant figure.

In another instance, on the construction of a large steel sheet pile bulkhead, the contractor pointed out to the designer an inherent weakness in the tie-rod system anchoring the bulkhead to the inside of the sheet piles and warned that there was danger of bulkhead failure by chain reaction if one of the welds should fail during back-fill operations. The warning was unheeded, with the result that a substantial portion of the bulkhead collapsed as the contractor had predicted. The whole job had to be redesigned and reconstructed and the reconstruction cost greatly exceeded the entire cost of the original job.

These are not the usual cases, of course. Designs are usually excellent. It is their translation into actual construction under field conditions which may increase or decrease the cost of the job.

Immature Inspectors Deplored

That costs go up more often than down is frequently because application of the plans to site conditions is left to field representatives who have not had sufficient practical experience in working out alternate methods with contractors.

I sincerely believe that this matter of the interpretation of plans and specifications by supervisory inspection personnel is the principal factor which creates controversies, causes delays and increases costs.

Contractors find it financially expedient to hire the best project supervisors available, regardless of cost. It is a duty of the engineer to assign field representatives to the site who are as equally qualified to move the job forward whenever day-to-day problems arise over interpretation of plans and specifications.

To the contractor, it appears a paradox for the engineer to devote the best brains of organization to design an economical structure and then entrust it to field representatives of limited experience. In asking for field representatives who are qualified in every respect, I mean that they should have both the ability and the authority to make binding on-the-spot decisions when the occasion demands.

Heed Contractors' Objections

I should like to say that reputable contractors have a fierce pride in doing a good job under all sorts of handicaps. But they cannot accomplish the impossible and designers would do well to heed honest objections to some design requirements.

I have in mind a contract involving tremie seals in a cofferdam in the middle of a waterway where field representatives insisted that multiple tremies be used, even though it was physically impossible to surround the structure with sufficient equipment to handle them properly. Later, it was proved by tests that the contractor's judgment in the number of tremies was correct, but only after some delay and added construction costs.

Mr. DeSimone

"I sincerely believe that the interpretation of plans and specifications by supervisory inspection personnel is the principal factor which creates controversies, causes delays, and increases costs."

Contractor Put Out of Business

During the early stages of my work in the field, I acted as superintendent for a contractor on the installation of a large outfall sewer. We had been asked to take over the project from a previous contractor who had failed. He had been doing a good job but after several unsuccessful attempts, he found it was impossible for him to lay the heavy concrete pipe in the manner shown on the plans and described in the specifications. They specified that he support the pipe on blocking resting on soft bottom.

He then requested permission to lay the pipe on a pile foundation, with payment for the extra cost. His request was denied. As a result he faced the alternative of supplying the pile foundation at his own expense or giving up the job. He gave up the job, after sustaining a terrific loss, and was driven into bankruptcy.

The contract was given to us with instruction to lay the pipe on pile foundation—the only practical method by which the work could be done.

This is an extreme example of how construction costs can be substantially increased by poor design.

A Case of Cooperation

As an example of the opposite, let me cite the case of a large bridge project where, after the contract was awarded, the contractor sat down with the engineers and suggested an alternate design for a large anchorage pier, based on the availability of certain materials during a critical period of shortages. The suggestion was accepted by the engineers with the final result that costs for that part of the work were held within the contract price and considerable time was saved.

As a matter of economical operation—to facilitate their own planning and scheduling—contractors are as desirous as the engineers to follow plans and specifications to the letter when field conditions permit. When they do not, a solution fair to both parties must be reached quickly and efficiently if costs are to be held in line.

Economy Measures Advised

To sum up, I strongly recommend:

- That in preparing his design the engineer constantly keep in mind the methods to be used for economical construction by the contractor.
- That the engineer be responsible for the accuracy of borings and subsurface data shown on plans.
- That engineering plans be complete and definitive, yet sufficiently flexible so that they may be adapted without loss of time and, if possible, without increases in costs, when conditions change in the field.
- That interpretation of specifications in the field be entrusted to supervisory personnel who have had practical experience with contractors and who understand their methods of obtaining results and who have authority to make binding decisions.
- That regularly scheduled field meetings be held between engineer and contractor representatives to discuss the work so as to be of mutual assistance when problems arise.
- That where separate specialty designs are involved they be thoroughly coordinated in advance, with field conditions in mind.
- That it be remembered that a design that appears most economical from a purely design standpoint may actually be more costly if it calls for special construction methods.

Glen B. Woodruff, *M.S.C.E., consulting engineer, Bechtel Corp., San Francisco.*

Mr. Woodruff

"The challenge to the industry is to find more economical means of construction and this economy must start in the design office."

» THE VOLUME of future construction depends, in these days of spiraling costs, on our ability to provide structures that will be competitive on the basis of invested capital with those built before the depreciation of the dollar. Thus, the challenge to the industry is to find more economical means of construction.

This economy must start in the design office.

Maximum economy of design requires careful consideration of many factors—the end use of the facility, the location, and the availability of materials, equipment and labor. For example, as labor has become more costly and less efficient, a premium has been placed on designs allowing greater use of machines. The reverse might be on a dam project in Asia where cement might be so expensive and labor so cheap that usual design considerations would be reversed.

Economy Begins With Designer

These are the broader aspects. But economy must start with the designer himself. The ideal designer would have a complete knowledge of all branches of engineering theory. He would be acquainted with technical literature and be abreast of engineering research. He would be thoroughly familiar with construction methods and the possibilities in construction equipment. He would be able to visualize all steps between the general concept of the project and its completion. He would weigh carefully the various available construction materials and adopt these to the questions of appearance, durability and maintenance. He would analyze each

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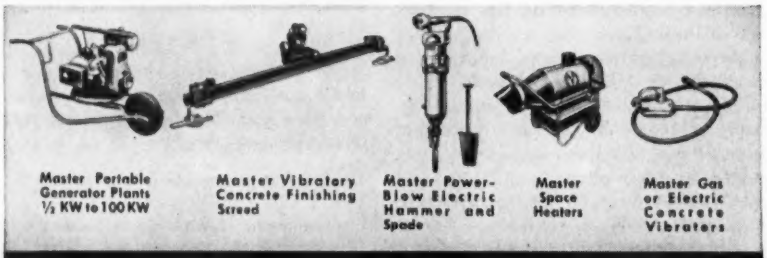
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construction operation and assure himself that all of them are feasible and that equivalent results can be achieved more economically. On top of these qualifications, he would apply common sense and good engineering judgment. Men meeting these specifications are not readily available.

Designers Need Field Experience

Rarely is a job completed without minor failures which do not result from high stresses from forces considered during design, but rather result from the neglect of the designer to recognize conditions present in the field or forces existing during construction or in the completed structure.

As part of the engineer's training, it is desirable that the industry do more to encourage experience in both construction and design. The designer requires greater knowledge of field practice such as building of forms, placing of concrete, fabrication and erection of steel, and the use and limitations of heavy equipment.

Likewise, it would help the construction engineer to understand some of the reasons why, for example, reinforcing steel should be placed in the position indicated by the drawings.

Within limitations, speed in construction leads to economy. A short construction period reduces financing charges. In the design office, speed is possible only after the general plan is laid out and complete information available. Nothing is more destructive to morale in the office or in the field than frequent changes. As professional men, designers should resist pressure for a finished product without sufficient time to produce the best results.

Seek Free Discussions

Closer coordination between the designer, the estimator and the constructor would produce economies. Discussions between them generally produce changes which facilitate construction and reduce its costs. As a designer I have frequently sought the advice of contractors on construction matters. In every instance the contractor has generously furnished such advice. Frequently the designer who reviews the estimate of his proposed structure and alternate designs will find opportunities for saving money.

I would make these general suggestions to designers of ways they can secure economies in construction:

- Duplicate detail design wherever

possible to eliminate form costs.

- Simplify formwork, reinforcing steel layouts, complicated steel details, machining and methods of assembly.
- Base the design on the most economical use of construction equipment, make possible the use of large units wherever possible.
- Study new materials and their availability, particularly the new lightweight products which reduce dead load.
- Consider the possibility of using new methods of construction, such as precast and prestressed concrete, welding and field bolting in place of riveting.
- Write specifications defining precisely the minimum results required *and leave the means and methods of securing the results to the contractor.* High standards and precision tolerances are not necessarily the same thing.
- Employ experienced inspectors. The most common complaints, generally justified, come from honest, experienced contractors in regard to delays and unnecessary costs resulting from enforcement, by young engineers, of unreasonable restrictions which are not applicable to the case in point or which need not be enforced to secure satisfactory results.

These are practices by which the designer and engineer can achieve savings for his client without endangering the high standards of his construction goals.

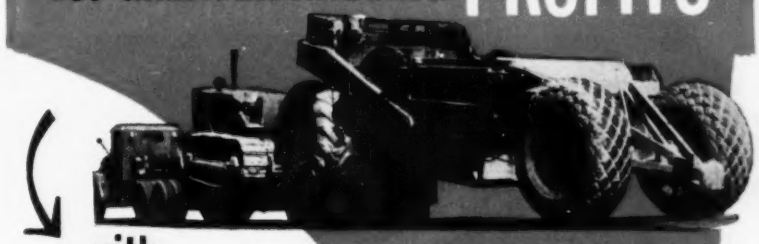
Two Joint Committees Meet

Two joint cooperative committees of state highway officials and general contractors met recently to discuss mutual problems.

Members of the Association of Highway Officials of North Atlantic States met with representatives of The Associated General Contractors of America last month in Atlantic City to seek solutions to the engineering manpower problem, highway financing and actual construction problems. The committee is exploring means of securing higher salaries for state highway engineers and recruiting more young engineers.

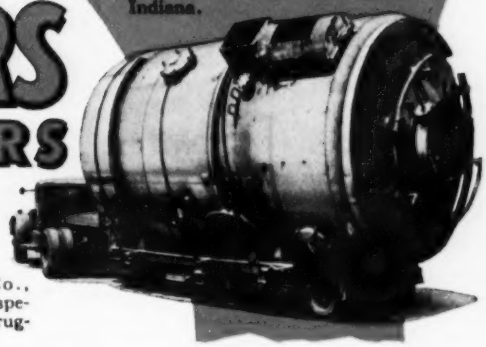
In Chicago, another committee of A.G.C. members and representatives of the Mississippi Valley Conference of State Highway Officials tackled similar problems.

"Plus" Payloads for GREATER HAULING PROFITS



...with ROGERS TRAILERS

Photo: Courtesy of Ralph Myers Construction Co., Bloomington, Indiana.



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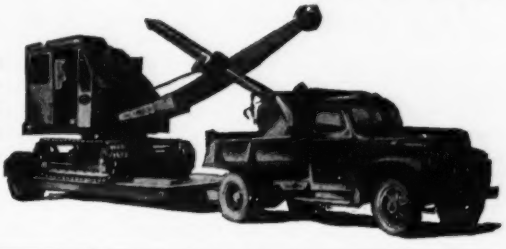
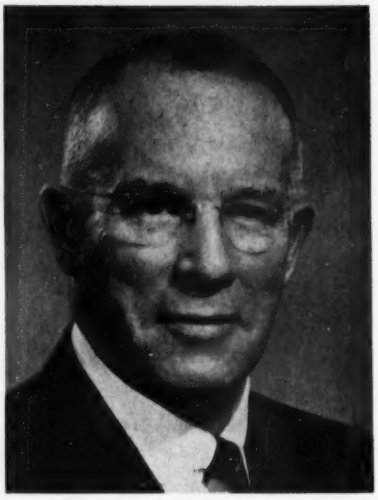


Contractor Advises Educators to Teach Engineers the Basic Skills

» A NEW ENGLAND builder was recently offered a universally coveted opportunity—that of telling teachers what should be taught. Before an audience of engineering professors, he reeled off a string of specific techniques which he declared should be taught to young engineers, but which frequently are not.

N. B. O'Connell, recently named vice president of the Turner Construction Co., A.G.C., Boston, told a meeting of the American Society for Engineering Education at Dartmouth College that "civil and architectural engineering courses no longer give a young man a training for quick usefulness" in the building construction industry.



N. B. O'Connell, now vice president of the Turner Construction Co., A.G.C., New York, has been with that firm his entire construction career since 1920 and has held all field positions up to general superintendent. He graduated from the College of the City of New York in 1915.

Remedies Based on Experience

The veteran contractor offered nine pertinent remedies based on his conclusions gleaned from long personal experience and from discussion with young men just entering the industry. These skills and understandings, Mr. O'Connell said, should find a place in engineering curriculums for aspiring building engineers: surveying, plan reading, earthmoving, human relations, electrical air conditioning and steam plant installation, labor relations and the business elements of contract construction.

"In the so-called 'good old days' construction was simple, and the contractor could make up in loud profanity and bombast what he lacked in skill, knowledge and education. Today, things are different. Construction, particularly building construction, is a highly organized, specialized and scientific operation. The erection of a modern building involves many diversified operations, starting with the making of borings to determine foundation conditions and ending with the final balancing of the air conditioning system so that there will be no drafts on anyone's neck. It takes skilled workmen of many crafts using a wide variety of materials to produce the final product. While much of the work of a highly specialized nature is done by subcontractors whose staffs are trained for their particular operation, the over-all responsibility lies with the general contractor. This responsibility includes not only execution of the work in accordance with the plans and specifications, but also accomplishment on time regardless of the difficulties encountered on the way.

Working Knowledge of All Fields

"The successful management of such a construction project requires a working knowledge of all the many subdivisions of the work," Mr. O'Connell advised. "These involve many branches of engineering in addition to a good business training and a knowledge of human relations. Civil engineering is probably the most important scientific training, but the great quantity of diversified detail of building construction requires a broad knowledge of the electrical, mechanical, heating, ventilating and air conditioning fields as well."

According to Mr. O'Connell, the young professional engineer should be given "a good knowledge of instruments and their adjustment. Given a point, a line and a plan, he should be able to go out and lay out a building. He should know how to check a form for line and grade and lay out a partition from a floor plan. He should know how to work his way quickly down into a deep excavation to check the grade at the bottom."

The well-educated building construction engineer would be an apt plan reader. To a good basic course in descriptive geometry, which would help develop a "three-dimensional mind," should be added practice in working up detailed sketches from general plans. "Problems calling for finding out from a set of plans the details of a specific feature of a structure would familiarize the student with various systems of cross-sectioning and detailing used in the trade," Mr. O'Connell felt.

Electrical Theory Important

The building contractor wanted graduate engineers to know more about modern electrical installations, material and equipment. "Good preparation along these lines should include not so much electrical theory as a reasonable familiarity with modern circuiting practice, lighting and power distribution, low tension systems—such as fire alarm, clock, auto call, and telephone. A basic knowledge of the common current characteristics used in buildings and an acquaintance with transformers, switchgear, circuit breakers, cable and wire, grounding distribution, and switch panels would be very helpful to the young man who plans to follow building construction."

Air-conditioning instruction, again with the accent on practical installations rather than theory, could be added to the engineer's educational background. While subcontractors handle the actual work, the engineer working for a general contractor must often be able to schedule, coordinate and expedite such installation, Mr. O'Connell told the educators. "He, therefore, should have a basic knowledge of the component parts of the systems, the rotation of installation, and the approximate time factors. He must know something about refrigerants and refrigerating compressors, condensers, cooling water systems, air distribution and duct layouts."

Should Know Steam Plants

Another phase of the construction engineer's education should be built around the workings of a modern steam plant and the general features of boiler house piping. "In addition, academic preparation for the other plumbing and process piping systems that form the arteries of the modern industrial plant is most necessary for a successful construction career," the building superintendent said. "These requirements

may seem a little exaggerated to you, but I cannot overemphasize today's pressing need for mechanical training for the construction supervisor."

Business Know-how Advised

To supplement the engineering student's indoctrination in these technical fields, Mr. O'Connell advised some instruction in the business particulars of the construction industry. Lump-sum and cost-plus contracts, the procedures of bidding, awarding practices, relations with owner and architect, subcontracts, purchase orders, timekeeping, material checking, accounting systems, costs, estimating and man-day analyses—all these are subjects to which he should have an introduction.

Mr. O'Connell referred lightly to his own exposure to business terms to illustrate the embarrassment likely to attend ignorance of such matters. "I still remember my first day in the construction business when, after listening in baffled ignorance to several references to "invoices," I was agreeably relieved to learn when I saw one of those documents that it was just a "bill."

The complexities of human nature and the need for the engineer to work harmoniously with his associates puts a responsibility upon the engineering school to develop a wholesome attitude in its students.

Must Know Human Nature

"Many men come out of college shy, reserved and introspective," Mr. O'Connell said. "They have difficulty getting along with their associates, the foreman on the job and the workmen. They often come to us with an exaggerated idea of their own importance or else use this type of approach to cover a lack of confidence. If I had my way, I would have each engineering graduate take a Dale Carnegie course to help him to make friends and influence people. After all, management is the most vital part of the construction process and one must be human and know human nature in order to handle others successfully."

In the same vein, Mr. O'Connell classified an understanding of the aims, problems and conflicts of both labor and management as "a must for the successful construction manager." The extent and limits of the work jurisdictions of 19 craft unions, the plan for settling disputes about jurisdictions, the basic principles of collective bargaining, the function of the National

(Continued on Page 58)

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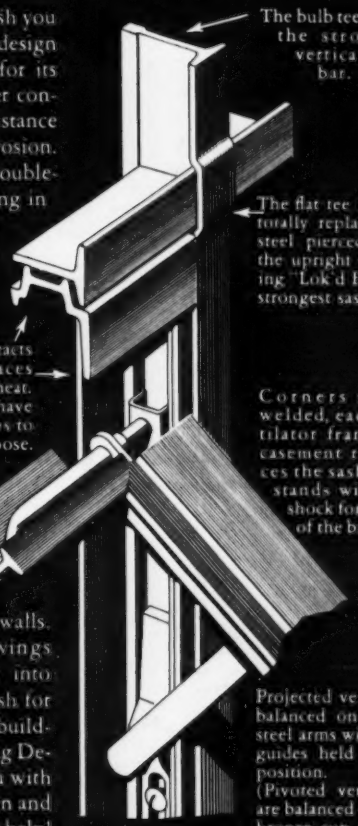
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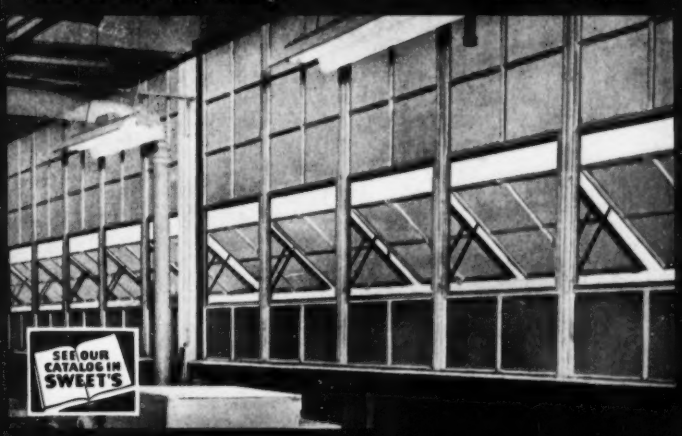

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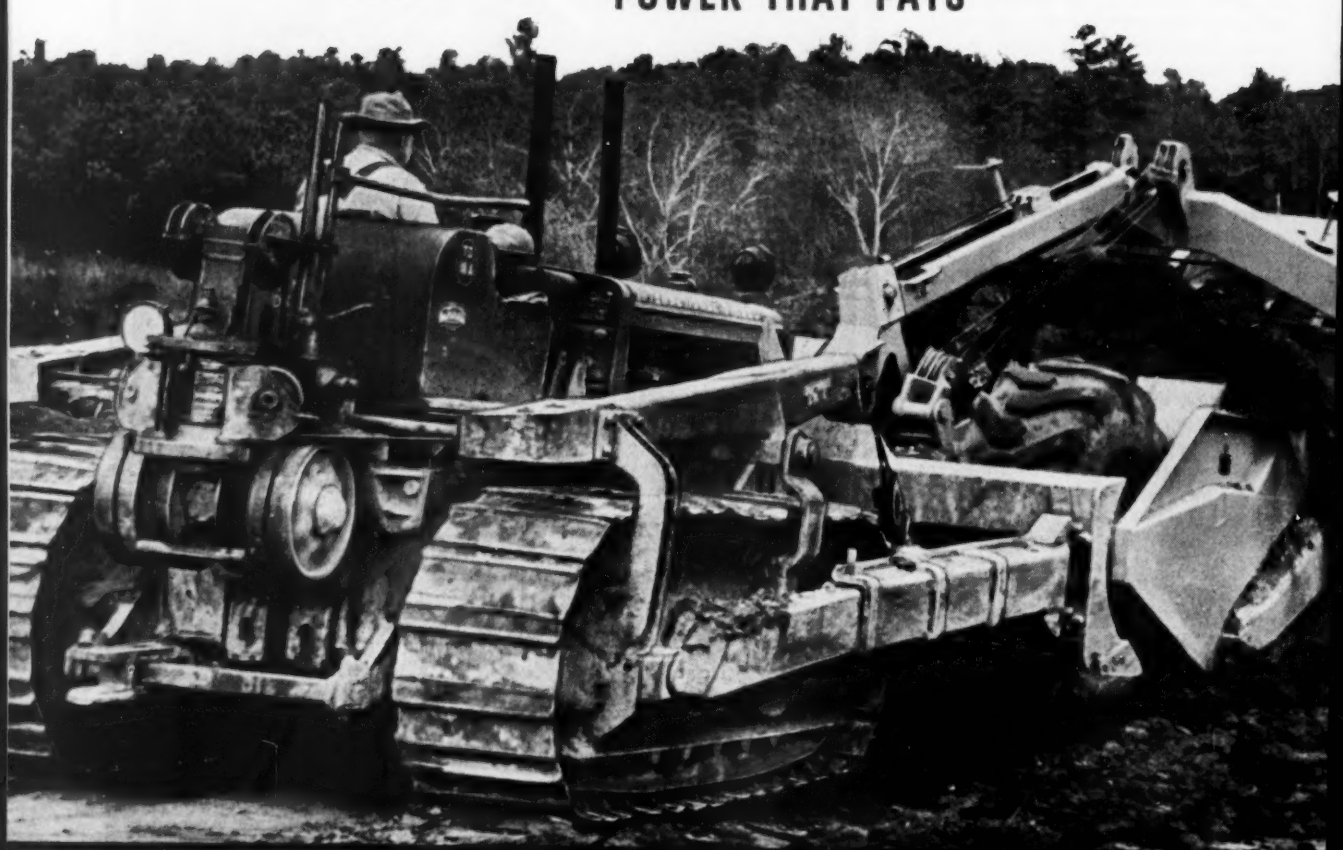

Atlanta airport expansion job is scene of new triumph for International power

When C. A. A. district headquarters decided to move to Atlanta, Georgia, the east-west runway at nearby Fulton County Airport had to be extended to 5,000-foot length.

One contractor, C. L. Rhodes of Decatur, Georgia, is doing the entire job, including cutting through a 39-foot hill and moving 350,000 cubic yards of sandy clay.

Rhodes' General Superintendent, R. N. Smith, tells how the work is going:

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"Our operators push 'em to the limit all day long to get the job done ahead of schedule. The tractors get clean filters, fuel and grease, and hard work—more hard work than is reasonable—and they take it month after month without a let down!"

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EDUCATION

(Continued from page 55)

Labor Relations Board, and the provisions of the Taft-Hartley Law are all essential information for today's contractor," he declared.

The veteran builder admitted that the requirements he had laid out might require a new appraisal of engineering school curricula. To meet the practical goals enumerated, he suggested the elimination of certain general courses, such as calculus, hydraulics and structural design. He appealed for serious consideration of such measures in order that the value of engineering education might be more immediately realized in the day-to-day demands upon the young engineer employed in building construction.

A.G.C. - *Sponsored Classes*

In cooperation with local universities and colleges, a number of chapters of The Associated General Contractors of America are currently conducting educational programs for supervisors or workmen. The ventures, some of them experimental, are winning acclaim from local civic leaders and getting favorable publicity in the local regional press.

In Dallas, a pilot program for supervisory personnel has been initiated by the Municipal Contractors Association, an A.G.C. chapter. (Article on this venture will follow in another issue of THE CONSTRUCTOR.)

In Tennessee, The Memphis Chapter of the A.G.C. is sponsoring another school for construction supervisors. The instructors are outstanding contractors, engineers and architects of the city. Classes, which began last January at the University of Tennessee Extension School, cover a number of subjects pertinent to the trade. Among these are: Job organization and layout, administration of records, carpentry work, excavation and grading, foundations, form construction, human relations, and use of steel, concrete and masonry.

The classes meet one night weekly for about two hours and run for a period of 15 weeks.

The South Texas Chapter of the A.G.C. is sponsoring a course in estimating for the building trades at Del Mar College. The 50-hour course is described as being for beginning estimators but is reportedly of such nature that it will add to the speed of experienced estimators. During the weekly three-hour sessions, the stu-

dents will study specifications and contracts, blueprint reading, surveying and excavation as well as how to estimate material and labor costs for all trades. Cost of the course to students is only $7.50 plus textbook.

Education News Notes

• Commencing this summer, the University of Houston (Tex.) will offer one of the first courses in construction safety for which credit is given toward a degree in industrial engineering. Textbook for the class will be the *Manual of Accident Prevention in Construction* put out by The Associated General Contractors of America as the official safety guidebook of the industry.

Mr. Fred James, safety director of the Tellepsen Construction Co., A.G.C., Houston, and assistant professor of industrial engineering at the university, will teach the course. Three hours of college credit will be given.

• A program, known as the Co-operative Engineering Educational Program, is helping the Kentucky State Highway Department to secure engineering help in spite of the extreme shortage.

Under the plan, high school students who rate high in a competitive examination are given the opportunity to study at the University of Kentucky and alternately work for the highway department. Under such an arrangement, the student pursues selected studies at the university's College of Engineering six months of the year and during the summer and fall works at regular salary schedule for the department.

• Columbia University in New York City this semester added a new course to its curriculum in building construction which is titled "Business Problems of Building Construction." The class runs for 15 weeks and is slanted for architects, engineers, contractors and others engaged in construction and maintenance of buildings. Topics being discussed include taking of bids, relations among contractors, coordination of contractors, payments, advertising, interpretations and difficulties of specifications, extras, and legal implications for contractors.

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For even greater performance ability, power for the Model D has been boosted to 40 brake hp. Also, leaning front wheels and power circle turn now are available (optional). With these and other big-grader features such as tandem drive, ROLL-AWAY Moldboard, tubular frame and hydraulic blade lift — the Model D's original cost still is but one-third that of a large grader. Operating costs are low, too.

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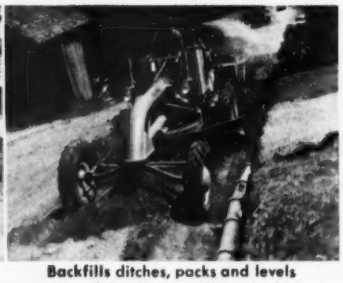

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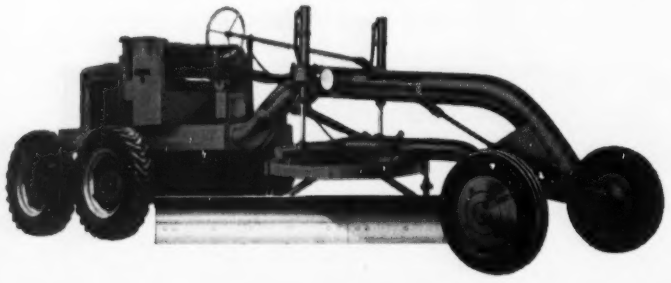

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A.G.C. Contractors Win Safety Honors

• New Records Set Last Year in Accident Prevention

» CONSTANT work by leaders of the construction industry to reduce job accidents was exemplified in Miami last month when The Associated General Contractors of America named 201 member firms and chapters to receive awards for outstanding safety records.

This marked increase from 120 similar awards presented to winners last year assures association officials that the A.G.C. safety program is saving lives of men and reducing overall construction costs.

Chairman H. B. Alexander, Harrisburg, Pa., of the Accident Prevention Committee reported to the contractors' 34th annual convention that the result of such a program is measured in lower insurance rates for contractors, less human suffering for employees and more construction for the public's dollar.

Frequency Rate Drops

The frequency rate last year dropped substantially among those firms participating in the A.G.C. safety program—from 44.5 in 1951 to 32.5 last year. This rate represents the number of accidents per one million man-hours worked.

Harry J. Kirk, Washington, D. C., A.G.C. safety director, noted a 75% increase in members participating in the program and said, "This demonstrates the growing effectiveness of voluntary cooperation through the association, locally and nationally."

Because of the large number of awards won by chapters and members, it was decided to present only the first-place awards at the convention. All other awards will be presented by chapter officers in local ceremonies at later dates.

Over 6,200 building, highway and heavy contractors in all the states, Hawaii, and Alaska are members of the national association.

Variety of Awards Given

Construction firms honored were those with the best one-year, five-year and ten-year records. Also, nine chapters were presented awards for getting the highest percentage of members to participate in their respective groupings.

The Dallas Chapter, which has 35 members, led the field with 100% participation among the group of chapters with fewer than 50 members. Second place in the small-chapter classification went to the Pennsylvania Builders (Harrisburg) with 93% participation. The Milwaukee Chapter took third, 85% reporting.

Among the medium-sized chapters —with 50 to 100 members—the A.G.C. of West Virginia won first place honors with 88% of members taking part. Second place was capped by the Constructors Association of Western Pennsylvania which had 79% reporting. Third-place went to the A.G.C. of Missouri, with 59% reporting.

Michigan Tops Large Chapters

Michigan Road Builders Association (Lansing) won first place in the large chapter group (over 100 members) when 80% of its members took part in the safety program. The A.G.C. of Minnesota, with 31% participating, came in second and the A.G.C. of Iowa won third place.

Nine construction firms won high honors in the accident prevention contest for the best 10-year records. In the *Building Division*, H. B. Alexander & Son of Harrisburg, Pa., won top honors. Second place went to the Woermann Construction Co., St. Louis; and third prize, to the John C. Westphal Co., Detroit.

Highway Contractors Win Honors

In the *Highway Division*, A. J. Baltes, Norwalk, Ohio, took the first prize for the best record in 10 consecutive years. The second and third place awards respectively went to Colgazier & Hoff and the H. B. Zachry Co., both of San Antonio.

The Newberry Electric Corp. of Los Angeles won top honors in the *Heavy Division* with the best 10-year record. Maxon Construction Co. of Dayton won second place and the Fluor Corp., Los Angeles, came in third.

Best five-year records in the Building Division were divided among firms that were above or below the average exposure of 2.5 million man-hours. In the upper division the Siesel Construction Co., of Milwaukee took first place; Ritter Brothers, of Harrisburg, took second and the Southeastern Construction Co., Char-

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#16 of a Series

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Baytown, Texas

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Excavation: Associated Contractors

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• The soil was laminated: silty sand, tough clay and shells. These obstacles were overcome with a drill-rig and sanding casing.

• Photo shows tunnel approach at South portal. Operation was duplicated at North portal.

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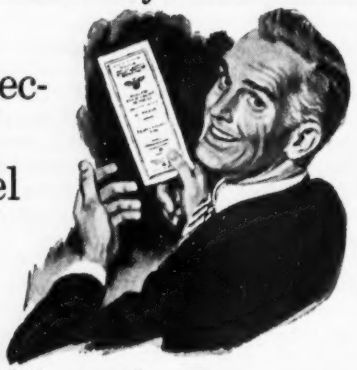

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lotte, N. C. won third place. For those firms with less than average exposure hours, R. S. Noonan, York, Pa., won first prize; with the Bauer-Schoeneck Construction Co., Milwaukee, taking second and the Stibbard Construction Co., Detroit, getting third.

Best five-year contractors in the Highway Division were George K. Werner & Son, Clay Center, Neb., first prize; Burrell Construction & Supply Co., New Kensington, Pa., second prize and the Diesel Oil Sales Co., Seattle, third place.

Heavy Construction Firms Place

Heavy Division firms with best records for this period are the George Carlson Co., Milwaukee, first place winner; Wermuth, Inc., Fort Wayne, taking second place honors; and C. F. Braun & Co., Alhambra, Calif., which came in third.

Top Building Division firms with exposure exceeding 500,000 man-hours were the Byrum Construction Co., Wheeling, first place; Charles J. Rogers, Detroit, second place and the Siesel Construction Co., Milwaukee. Those firms of the division working between 200,000-500,000 hours that won prizes did so in this order: P. O'B. Montgomery, Dallas, first; the Cleveland Construction Co., Cleveland, second; and Robert E. Nesmith, Houston, third.

Of the contractors working less than 200,000 hours, the J. B. Warrack Co., Seattle, won first place honors for the fewest accidents. Lupinski, Inc., Milwaukee, placed second and the Peterson Construction Co., Dallas, came in third.

Mid-West Road Builders Head List

Awards for the Highway Division firms with best records last year were divided among those who worked more or less than 200,000 hours. In the upper bracket the Kaser Construction Co., West Des Moines, Iowa, won top honors; and the Thornton Construction Co., Hancock, Mich., and Visintine & Co., Columbus, Ohio, were awarded second and third prizes respectively.

In the lower grouping of highway firms, the Pierson Construction Co., Saginaw, Mich., had the best record, followed by the A.&A. Asphalt Paving Co., Birmingham, Mich., and the Quinn Construction Co., Kansas City, Mo., in that order.

Top firms in the Heavy Division that worked over 500,000 hours won

safety awards in this order: Ferguson & Edmondson Co., Pittsburgh; Tellepsen Construction Co., Houston, and E. C. Machin, Allentown, Pa.

Corresponding winners in the division that worked less than 500,000 hours were Nick Istock, Aliquippa, Pa.; Walter L. Couse & Co., Detroit; and Quad City Construction, Rock Island, Ill., in this order.

Another record was set in the number of firms reporting no lost-time accidents—157 in 1952, compared with 74 the year before. This figure represents 66 merit awards to Building Division members, 67 such awards to firms in the Highway Division and 24 awards to Heavy Division winners.

Safety Pay-Off on Arctic Job

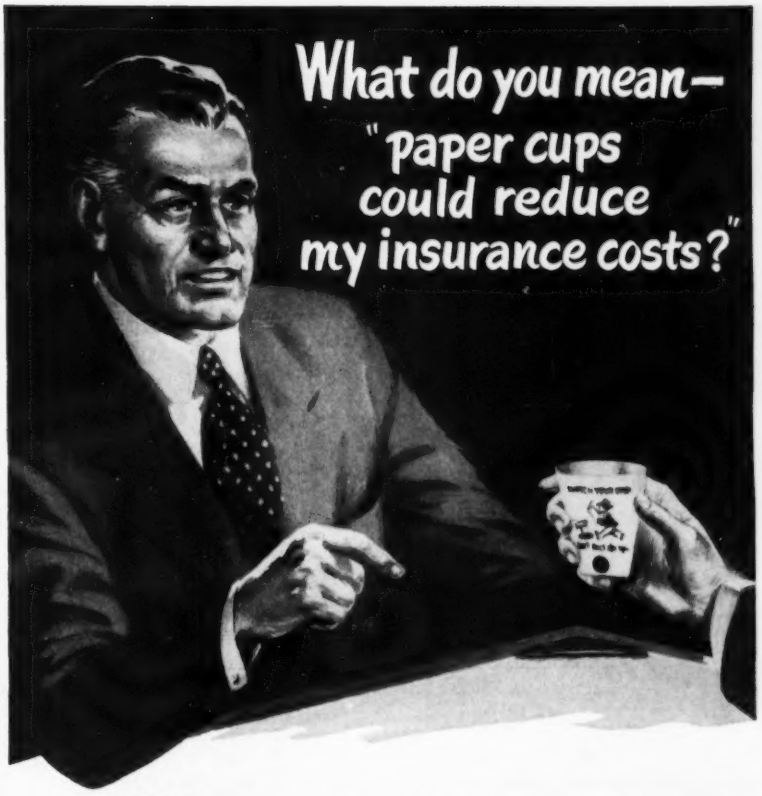
Savings in insurance premiums of "at least $830,000" have been made possible by an extraordinary safety record set by the North Atlantic Constructors on the Thule Air Force Base project in northern Greenland.

The four-contractor team composed of Peter Kiewit Sons' Co. and Condor-Cunningham, both of Omaha, and S. J. Groves & Sons and Al Johnson Construction Co., both of Minneapolis, chalked up an accident frequency record 75% better than the average for the same kind of work in the U.S. All firms are A.G.C. members participating in the association's safety program.

Almost half of the 8.6 million manhours in 1952 were worked in Arctic darkness as the 5,000 workers sought to complete the project under the most adverse climatic conditions—extreme cold and windy gales.

The Liberty Mutual Insurance Co., which insured the contractors, prepared a detailed safety program for the project beginning before the workers left the states. Soon after Thule was authorized, the insurance firm sent engineers to the staging areas in Minnesota where workers were being recruited and began to orientate supervisors in safety practices.

Such pre-planning reduced accidents substantially, the firm claims. An example is the unusual record achieved by riggers. During almost 61,000 manhours when they were raising sheet steel for fuel tanks in very high winds, only one lost-time accident was incurred. It kept the worker involved off the job for only a day. The men also erected a steel tower some 1200 ft. high with only one accident, in spite of 125-m.p.h. winds.



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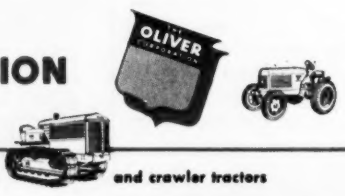

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Meeting the Construction Industry's Problems in 1952

ANNUAL REPORT TO THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA

34th Annual Convention, Miami, Fla.

By H. E. Foreman, Managing Director

A Time of Great Opportunity

The purpose of this report is to outline the principal activities of The Associated General Contractors of America since conclusion of the 33rd Annual Convention in Detroit on February 28, 1952; to analyze the conditions now facing the construction industry; and to explore the opportunities for the future.

The annual report to the previous convention recorded the fact that activities of the construction industry were almost completely controlled by federal regulations, and related the positive steps which the association had taken during the year for the benefit of its members, the industry and the public.

During the period since that convention the majority of the federal controls remained in force, with the exception of the past month, although they deteriorated in effectiveness and their need gradually diminished. The association carried out its policy that so long as there were controls the association should use its influence so that controls did not unreasonably hamper the industry's efficiency, and should keep members completely and accurately informed.

New Attitude of Government. The new administration, which has been in office a few days more than two months, has now abolished most of the regulations over the industry. While there has not yet been time for the new Administration to complete the development of its policies and program, it has brought a new attitude and climate to the field of government. This is founded upon the faith that freedom for the exercise of creative initiative is the foundation for the most effective development of the nation and its communities.

The forces of unrest throughout the world are of such a nature that it is not realistic to believe that lasting peace can be achieved immediately. It appears inevitable that heavy expenditures for national defense must continue for an indefinite period. While there can be confidence that the new Administration will exert its best efforts to bring about a sound peace, there is also need for great national strength and patience.

The new Administration is following the policy that for it to exert influential leadership for world peace there must be a dynamic economy at home based upon the initiative of free enterprise, with individuals taking the responsibility for actions which will be in the common good.

This is a time of great opportunity for the construction industry. A fundamental of a dynamic domestic economy is a vigorous and active construction industry. The industry is now operating at a rate which promises to establish another new record of activity for 1953.

This is a time of great opportunity also for the A.G.C. nationally and locally. Through the years it has consistently been gaining in size, strength, effectiveness and constructive service to its members and the public. Its experiences have fitted it for even greater contributions in the future.

Construction Future Encouraging

The immediate and long-range prospects for the construction industry are encouraging.

During 1952 the industry is estimated to have put in place in the continental United States a record of $32.3 billion in new construction and a total of $42.3 billion including maintenance and repair operations.

Another Record Year. Estimates compiled from various sources by A.G.C. indicate the potential of another record of $33.5 billion in new construction this year and a total of nearly $44 billion when maintenance and repair operations are added.

Added impetus to the start and the advance planning of new construction projects was given by the National Production Authority on February 16 in directions to CMP Regulations 1 and 6 which, essentially, removed controls from the start and continuation of all kinds of construction projects effective March 1.

The practical effect of the directions is that no more applications need be made to NPA for authority to commence or continue any kind of civilian construction project, and that sellers may accept orders for controlled materials after the appropriate time has expired for honoring rated orders, so that there is a free market for the amounts of controlled materials not covered by rated orders.

A greater volume of most all kinds of construction projects is expected to come on the market during the first half of 1953 in most parts of the country according to a survey of A.G.C. members and chapters conducted prior to this convention.

During the elections last November an unusual number of bond issues were approved by voters for needed local public works.

Backlog of Construction. In spite of the fact that there has been a high level of construction activity in recent years, the backlog of needed public and private projects is greater than it has been previously, and other factors indicate the potential of a continuing high level.

The comprehensive book, *Stabilizing Construction: the Record and Potential,* issued recently by the Committee for Economic Development challenges the theory that a serious postwar decline is inevitable, and the study indicates that with public and private development of economic policies such as those recommended by CED, construction volume can remain at high levels through the foreseeable future.

The Department of Commerce, in a study entitled, *Markets After the Defense Expansion,* finds many factors for continued economic growth of the nation after the peak of defense spending has been reached.

Federal Budget Review. Early in February, immediately after the President made the first statement of the objectives and program of the new Administration to a joint session of Congress, the Director of the Bureau of the Budget announced a policy for review of the entire federal budget for the 1954 fiscal year (starting July 1, 1953), stating that "it is clear that the Budget will not be brought under control without action to reduce budgetary obligational authority, reduce the level of expenditures, critically examine existing programs, restrain commitments for new programs, and generally drive for greater efficiency and reduced costs."

The construction part of the over-all policy was announced as: "It is the policy to proceed only with projects which are clearly essential, and on such projects to employ the strictest standards of economy. All proposed or authorized construction projects on which work has not yet begun are to be reviewed and construction initiated only on those projects which meet these criteria. All going construction projects are to be reviewed according to the same criteria and appropriate action taken, including action to stop the work if this appears advisable."

A.G.C. Reaction. The A.G.C. Executive Committee, meeting a few days later in Washington, studied the action, and President Horner announced the committee's initial reaction, with the understanding that adverse developments could change the committee's stand, as:

"We believe that it is sound procedure to examine all public works—and other federal—expenditures, and proceed only with projects which are clearly essential, and to employ on them the strictest standards of economy. This will give further assurance to the public that funds for construction projects are expended economically. We have confidence that sound engineering judgment will be exercised in the review of going and proposed projects, and that the review will be completed promptly so that there will be no delays in executing needed projects and so that advantage can be taken of the full 1953 construction season."

The A.G.C. has consulted the government awarding agencies on their policies pending completion of the review. Most funds in the budget are for the continuation of projects and it is not anticipated that there will be a substantial reduction in federal construction programs now underway.

A continuing project of the A.G.C. is to advocate the contract method of construction, to inform its members of market potentials, and to work for conditions under which general contractors can execute their work most efficiently.

An apparent paradox was reported by directors and chapters that as more work comes on the market the competition between contractors becomes more keen.

Emergency Construction Controls Ended

In February the new Administration abolished the majority of the emergency controls over construction.

Throughout the period when there had been federal controls the A.G.C. policy had been to cooperate with the federal agencies so that the regulations were drafted to fit operations of the industry so far as possible. The association had taken positive action in connection with each control over general contractors. It also kept its members promptly, accurately and completely informed.

As the controls began to deteriorate in effectiveness and their need diminished, the A.G.C. and other industry organizations recommended that the controls be relaxed and abolished as soon as possible.

Volume Controls. Controls over the commencement and continuation of construction projects, as previously related, were in effect abolished by Direction 20 to CMP Regulation 1 and Direction 10 to CMP Regulation 6, Construction, issued February 16.

Earlier, A.G.C. members of the NPA Construction Industry Advisory Committee had recommended that these particular controls be relaxed during the fourth quarter of 1952 and abolished on January 1, 1953. Until the new Administration took office NPA officials had withheld the action first because of the steel strike, and then to permit the new Administration to take the action.

When the regulations were originally promulgated in 1950 the A.G.C. held frequent conferences with NPA officials aimed at procedures which would be the least hampering to the industry. The association was successful in having materials channeled directly to the industry by the CMP plan, which had not been done during World War II.

Wage Controls. Wage and salary controls were abolished by the President in an executive order February 6. This brought an end to the necessity for securing approval of the Construction Industry Stabilization Commission for wage increases in construction.

Soon after wage controls were established in 1950 the A.G.C. was one of the associations instrumental in securing establishment of CISC which had men familiar with the construction industry to administer for this industry the policies of the Wage Stabilization Board. While the WSB gave governmental encouragment to unions seeking health and welfare funds in the industry, the familiarity of CISC members with construction caused them to place a cents limit on welfare funds and prevented what might have been chaotic administration of wage policies designed for other industries by men who had no understanding of the industry's operations and problems.

Price Control. The construction industry price control order, Ceiling Price Regulation 93, which regulated general contractors and others was removed February 13. This relieved contractors of the necessity of keeping records on transactions after that date, but did require preservation of records for the time the regulation was in effect.

Through the assistance of the A.G.C., and other associations, the Office of Price Stabilization was able to take a realistic approach to the almost impossible problem of drafting a regulation for the industry, and succeeded in issuing one which did not compel changes in business practices or methods established in the industry.

Materials and Equipment Prices. Price control regulations for equipment rentals were removed February 13, and for the sale of most new and used equipment, lumber, and most nonmetallic building materials were removed February 18 in line with the President's directive for the orderly elimination of price controls.

Credit Control. Credit restrictions of Regulation X of the Federal Reserve Board over commercial construction were abolished last September. The A.G.C. had previously recommended the action.

Future of Controls. The President in his message to Congress stated he believed that material and product controls should be ended "except with respect to defense priorities and scarce and critical items essential for our defense," and "I shall recommend to the Congress that legislation be enacted to continue authority for such remaining controls of this type as will be necessary after the expiration of the existing statute on June 30, 1953."

He added that "If the freer functioning of our economic system, as well as the indirect controls which can be appropriately employed, prove insufficient during this period of strain and tension, I shall promptly ask Congress to enact such legislation as may be required. In facing all these problems . . . everywhere we remain mindful that the time for sacrifice has not ended. But we are concerned with the encouragement of competitive enterprise and individual initiative precisely because we know them to be our nation's abiding sources of strength."

Contracts and Specifications

One of the association's fundamental and continuing programs is to work for fair and equitable contract documents and administrative procedures, and for specifications encouraging quality with economical operations.

Judicial Review. This year positive steps again are being taken to secure enactment of legislation which will offset the effects of a Supreme Court decision and assure the right of judicial review of disputes arising from departmental decisions on federal construction or other procurement contracts.

As soon as this session of Congress opened, A.G.C. representatives consulted leaders of the Senate and House Judiciary Committees to encourage the early passage of a bill for the purpose. The Senate committee on February 4 unanimously voted a favorable report for S. 24, which is identical with the bill which passed the Senate too late last session of Congress for action by the House.

Chairman Chauncey W. Reed of the House Judiciary Committee has introduced H.R. 1839, which is identical with the bill unanimously approved by a House subcommittee last session and is the same as the Senate bill. In its report the Senate committee stated:

"S. 24 will have the effect of permitting review in the General Accounting Office or a court with respect to any decision of a contracting officer or a head of an agency which is found to be fraudulent, grossly erroneous, so mistaken as necessarily to imply bad faith, or not supported by reliable, probative, and substantial evidence. In other words, in those instances where a contracting officer has made a mistaken decision, whether wittingly or unwittingly, it will not be necessary for the aggrieved party to, in effect, charge him with being a fraud or a cheat in order to collect what is rightfully due."

When the bill first was called on the Senate calendar in February objections were raised by two Senators on behalf of certain government agencies. While this report was being written, A.G.C. representatives were conferring with government agencies and were coming close to agreement on provisions of the legislation.

Last November the Department of Defense started the use of a disputes clause in new contracts which permits court review of contracting officers' decisions which have been found to be "fraudulent, arbitrary, capricious,

or so grossly erroneous as necessarily to imply bad faith." Other departments have been studying use of such a clause.

The A.G.C. position has been that the court decision in the Wunderlich case has focused so much attention on disputes clauses and the finality of decisions by contracting officers that legislation such as S. 24 is essential to offset effects of the decision. Also efforts of the past quarter of a century by government agencies have been unsuccessful in developing a satisfactory disputes clause.

Renegotiation. Efforts of the A.G.C. which started before the Renegotiation Act of 1951 was enacted were rewarded on December 24 when the Renegotiation Board issued Staff Bulletin No. 12, *Guide for Renegotiation of Construction and Architect-Engineer Contracts.*

The board pointed out that the regulations and forms had been developed for general use and that the majority of those with government contracts were suppliers of military goods and other materials and products, adding:

"For that reason, the language of the regulations and forms is sometimes in terms not directly applicable to the construction industry. To assure a uniform and equitable result in the renegotiation of construction contracts, the differences which distinguish construction from supply contracts must be plainly recognized."

The guide for the renegotiation of construction and architect-engineer contracts was prepared by a group of experts in construction, and for the first time provides a practical guide for the renegotiation of such contracts.

While intended for the information and guidance of personnel engaged in renegotiation, it is equally informative to general contractors in the preparation of their cases. A comprehensive article explaining the guide was published in the February issue of THE CONSTRUCTOR. The Board has now appointed a construction expert in each of the New York, Chicago and Los Angeles regional boards, which are the ones which will handle construction cases.

The A.G.C. has given its wholehearted cooperation to the Board in its work of developing appropriate procedures for renegotiating construction contracts. It has, however, informed the Board that it does not agree with the approach for determination of what constitutes fair and normal profits and excess profits, nor with the policy for the renegotiation of joint ventures. Efforts will continue to secure more just and equitable policies on these matters.

Private Contracts. Committees of the American Institute of Architects and A.G.C. have been reviewing the A.I.A. Cost Plus a Fee Form of Contract for private construction. A recommendation may be made for A.G.C. endorsement of the document.

Other A.G.C. and A.I.A. committees have been preparing additions to be recommended for inclusion in the document, *A Suggested Guide to Bidding Procedure,* previously developed jointly by the two organizations. The A.G.C. has also recommended to the A.I.A. that this document be called again to the attention of architects.

Committees of the American Society of Civil Engineers and A.G.C. have been developing revisions for the standard form of engineering contract for private work and the standard questionnaire and financial statement for bidders.

Committees of the American Railway Engineering Association and A.G.C. have cooperated in revising railroad construction contracts.

Government Contracts. Improvements in contract procedures of the Veterans Administration were made during the year following conferences with A.G.C. representatives on recommendations made by contractors.

Early this year the Army Corps of Engineers issued instructions to field offices to eliminate ambiguous provisions in military specifications, following recommendations made by the A.G.C. Improvements in air field specifications also have been made after A.G.C. recommendations.

Improvements in contract procedures for rural electrification work also were made in line with association suggestions.

Surveys have been made by the A.G.C. on procedures of state highway departments for guarantees for bids and on payment of estimates.

The first meeting of the national joint cooperative committee of the American Public Works Association and the A.G.C., held in January, recommended to each organization that it authorize studies leading toward a standard form of contract for municipal construction.

Specifications. The work of Task Units of the A.G.C. Committee on Contract Forms and Specifications with the Army Corps of Engineers, the Navy Bureau of Yards and Docks, and the Bureau of Reclamation leading to improvements in specifications will be reported elsewhere.

Subcontractor Relationships

Good relationships of all groups in the construction industry and teamwork toward the common objective of more efficient operations and ethical practices helps to give assurance to the owner that maximum value is received for the investment in construction.

During the past year there has been unrest in the relationships between general contractors and specialty and subcontractors. The A.G.C. made recommendations for cooperative action to settle the common problems of the groups. So far the efforts of national groups of specialty contractors have been directed toward legislation regulating the award of subcontracts on federal public works projects.

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BLAW-KNOX

S. 2907. Last year the subcontractor groups sponsored federal legislation which would require general contractors on federal projects to name proposed subcontractors and the amounts of their bids. Public hearings were held by a subcommittee of the Senate Judiciary Committee on S. 2907 at which there was extensive testimony given by subcontractors, general contractors and government agencies.

The government agencies were unanimous in opposing the legislation, as were the more than 30 A.G.C. witnesses who testified. The bill was subsequently reported to the Senate without recommendation by the committee. Objections were raised to its consideration on the floor, and the bill died with the past session of Congress.

A.G.C. Boards. Last September the A.G.C. Governing and Advisory Boards at their Mid-Year Meeting at White Sulphur Springs gave extensive study to the whole field of subcontractor relationships.

The Boards stated their belief that depositories for the bids of subcontractors, the naming of subcontractors in a general contractor's bid, and the award of separate mechanical contracts independent of the general contractor's bid are not conducive to the most economical construction practices.

The Boards adopted a motion that "recognizes the desirability of establishing better and closer relationships with specialty contractors, and urges that all chapters, branches and members individually of A.G.C. cooperate to this end, to correct questionable practices so that harmony and confidence will be established in the industry."

The Boards also adopted another motion which "hereby authorizes the officers and Executive Committee to initiate such cooperative actions as they deem appropriate, directed toward establishing more harmonious relationships between specialty contractors and general contractors."

A booklet, *Just and Harmonious Relationships in the Construction Industry,* was issued to explain in more detail the position of the A.G.C.

Joint Committee Offer. On September 29 President Horner carried out the actions of the A.G.C. Boards and wrote to the president of the National Electrical Contractors Association, which had spearheaded the drive for federal legislation, recommending the establishment of a national joint cooperative committee to seek a solution to the common problems. He wrote in part:

"We in A.G.C. have felt that the spectacle of segments of the industry fighting before Congressional committees or before other legislative bodies, or of asking for legislation so that public officials or owners intervene in the relationships between businessmen impairs public confidence in the industry. Our belief is that we can solve our problems more satisfactorily within the industry."

A meeting was held November 11 in the conference room in the A.G.C. headquarters attended by seven N.E.C.A. representatives and eight from A.G.C. President Horner welcomed the groups by stating in part:

"We all recognize that there has been some unrest in the relationships between general contractors and specialty and subcontractors. Obviously our industry is going to serve the public more effectively if there is cooperation, rather than strife, between us. Our belief is that both groups have allowed this condition to come about and that both groups have the responsibility to take steps to cure it.

"None of us expects that we can reform the world or change human nature overnight. But we in A.G.C. do believe that meetings such as this, conducted in an atmosphere of mutual respect and confidence, can lead to a better understanding of our common problems. Our experience with other joint committees has been that a better understanding has led to recommendations which have been of benefit to both groups, to the industry generally, and to the public."

The N.E.C.A. a week later rejected the proposal.

A.G.C. Plan. President Horner acknowledged the action in a letter which stated in part:

"We hope that when there has been more time to study the proposals which have been made, you will reconsider the decision which your association has made and will join in cooperative efforts whereby the best intelligence of the industry can be directed toward means whereby segments of the industry can join in serving the public most effectively."

"At the meeting on November 11 of committees of the two associations we offered the creation of a joint committee to study the problems of bidding and awarding procedures between general contractors and subcontractors in the industry with reference to contracts other than federal contracts, if you wished to seek legislation governing federal contracts.

"The A.G.C. offered to develop with your association a bidding and awarding procedure which could be recommended to both N.E.C.A. and A.G.C. chapters. The suggestion also was made for local chapters of the two associations to form joint committees to consider charges of violations of such approved procedures, with appeals possible to a similar national committee.

"We offered to use the A.G.C. *Code of Ethical Conduct,* which your members have indicated is satisfactory to them, and procedures developed with architects, as the basis for discussions, as well as your own code.

"We believe that such an approach to our common problems is more in keeping with our responsibilities as businessmen than an appeal to government for further

For your next estimate, use

HAUL one way	TRIPS per hour (per unit)	PAY YDS. per hour (per unit)	Name of Owner	Job Description	Type of Material	Job Conditions
50'-300'	31	310	Moss Construction Co. *Paris, Ill.*	2 "C's" level 160,000 yds. at Logan County Airport, Lincoln.	Common earth and clay.	Scattered grading. Occasional heavy rains.
200'	42	450	Elmer Anderson, Contractor *Lyle, Minn.*	2 "C's" on 169,000-yd. Stevens County road job south of Alberta.	Loam and clay.	Average.
300'	26	247	J. Neils Lumber Co. *Libby, Mont.*	3 "C's" on 800,000-yd. road and railroad spur line near Rexford.	Hardpan clay, rock, sand and gravel.	Material slippery when wet; hard as concrete when dry.
325'	15	176.5	Beretta e Novi *Sao Paulo, Brazil*	3 "C's" grade 1,045,000-yd. public housing project in Caxingui.	Heavy, wet clay.	Continuous tropical rains cut work time to 3 days a week.
350'	12	132	Taylor Construction Co. *Asheville, N. C.*	2 "C's" on 1,500,000-yd. relocation of U. S. 19 between Canton and Lake Junaluska.	Very hard, slippery clay.	Traffic holds up 'Pulls in narrow places.
370'	13.5	135	Cia. Constructora, S.A. *Mexico City, Mexico*	4 "C's" on 6,500,000-yd., 155-mile section of International Highway, Negales-Guadalajara.	Hard clay with 20% loose rock.	Hard material, not scarified.
400'	21	210	E. Markham, Contractor *St. Paul, Minn.*	2 "C's" excavate 15,000 yds. on service roads for group of new homes north of St. Paul.	Clay and sandy loam.	Material frozen 8 to 12" deep. 5 to 10% icy grades.
400'	20	200	D. H. Blattner & Sons *Albany, Minn.*	4 "C's" on construction of 320,000-yd. Trunk Hwy. 42 north of Eyota.	Silty clay and rock.	Normal.
450'	28	338	Taylor Construction Co. *Asheville, N. C.*	2 "C's" on 400,000-yd. relocation of highway between Asheville and Leicester.	Clay with some rock.	Rock must be blasted or rooted.
450'	17	187	John P. Blakemore, *El Monte, Calif.*	4 "C's" build 600,000-yd. dam and reservoir at Eagle Rock.	Decomposed granite.	Rooted material. 16% grade on haul.
500'	17	170	John F. Walser, Contractor *Pontiac, Mich.*	2 "C's" build settling area for sewage disposal system at Camp Grayling.	White Michigan sand.	Very loose, abrasive material.
500'	18	216	Royce Young, Contractor *Auburndale, Wis.*	1 "C" strips topsoil and grades 22,500 yds. for Milwaukee park.	Topsoil and clay.	No definite haul roads due to scattered nature of job.
500'	15	180	S. A. Cummings, Contractor *Compton, Calif.*	2 "C's" move loose blow sand at Manhattan Beach subdivision.	Dry blow sand.	Return is steep, sandy, 20 to 40-second wait for pusher.
500'	14.25	150	Anderson Bros. *Rockford, Ill.*	1 "C" on 100,000-yd. levee to protect canning plant site at Mendota.	Sticky clay and topsoil.	Haul road often 12" deep in water.
550'	16	176	Vernie Jarl, Contractor *Gresham, Ore.*	3 "C's" on 410,000-yd. 5¾ miles relocation of Rt. 101 near Tillamook.	Sand, gravel, hardpan, clay and loam.	Material saturated by continual heavy rainfall.
585'	14	165	"SERTECS" and "KOZECA" *Rio de Janeiro, Brazil*	2 "C's" move 40,000 yds. to level site of housing project in Campo dos Alfonses.	Coarse sand and sandy clay.	Fairly level, though rough, haul roads.
600'	20	200	Isbell Construction Co. *Reno, Nev.*	2 "C's" on 17.6-mile, 316,000-yd. road construction near Elko.	Mixed sandstone, clay, loam.	15% return grade. 6500' altitudes.
600'	26	260	Carl Bolander & Sons *Minneapolis, Minn.*	2 "C's" grade 30,000 yds. of roads in housing project at Minneapolis.	Sandy clay loam.	Average conditions.
600'	18	198	Post Brothers *Santa Ana, Calif.*	3 "C's" do 150,000-yd. land-leveling job at India.	Loose, dry sand.	Hauling over loose footing.
600'	14	140	Braden & Walters *Marietta, Ohio*	2 "C's" on 205,000-yd. raising of 3.5 miles of Rt. 104 between Lake White and Jasper.	Yellow clay.	Tight loading quarters. Haul through highway traffic.
600'	13	117	Central Waterways Irrigation *New Delhi, India*	2 "C's" on 25,000,000-yd. Hirakud Dam across Mahanadi River.	Hard, rocky clay.	100' of 20% grade. Very rough haul.
650'	23.5	235	Moss Construction Co. *Peoria, Ill.*	2 "C's" level 160,000 yds. for Logan County Airport, Lincoln.	Common earth and clay.	No established haul roads. Very heavy rains.
650'	13.3	160	J. W. Briggs & Associates *Grandview, Wash.*	3 "C's" on 364,000-yd. relocation of Willamette Forest Hwy. near Detroit, Wash.	Topsoil and gravel.	Spread made over swampy area.
650'	10	100	Cia. Constructora, S.A. *Mexico City, Mexico*	4 "C's" on 6,500,000-yd., 155-mile section of International Highway, Negales-Guadalajara.	Hard clay with 20% loose rock.	Hard material, not scarified.
700'	15	150	B. G. Young & Sons *Johnson City, Tenn.*	2 "C's" grade 130,000 yds. for airport at Greeneville.	Common earth.	Haul up 6% grade.
700'	13	117	Schultz and Lindsay *Fargo, N. D.*	2 "C's" on 380,000-yd. Riverdale housing project for Garrison Dam workers.	Sandy clay and loam.	Normal.
750'	15	186	D. H. Blattner & Sons *Albany, Minn.*	1 "C" on 270,000-yd. section of Rt. 30 near Amboy.	Topsoil and clay.	Good.
750'	16	176	Brasil-Whitehead & Asbell Bros. *Riverton, Wyo.*	2 "C's" spread 600,000 yds. of earth over 40 acres of burning coal deposits.	Mixed shale, rock and clay.	Spread down 20%, return up 8 to 12% grades for 500'.
800'	20	Not Measured	Leon Jayce, Contractor *Rochester, Minn.*	3 "C's" handle 100% of 180,000-yd. grading on runways at Austin airport.	Wet clay loam.	Material soaked by heavy rains.
800'	19	190	Isbell Construction Co. *Reno, Nev.*	2 "C's" on 316,000-yd., 17.65-mile road construction north of Elko, Nev.	Sand, loam.	7% adverse grade on return. 6500' altitude.
800'	14	147	John P. Blakemore, Contractor *El Monte, Calif.*	4 "C's" haul 600,000 yds. for reservoir at Eagle Rock.	Decomposed granite.	Haul upgrade.
800'	11.2	146	W. H. Darrough & Sons *Yuba City, Calif.*	2 "C's" help level 700 acres for replanting of peach orchard at Winters.	Sandy loam.	Holes, soft spots left where trees were pulled.
850'	7	Not Measured	Henry Thygesen, Contractor *Albuquerque, N. M.*	1 "C" on highway construction near Belen, N. M.	Loose, powdery blow sand.	Cuts sprinkled to aid loading. Loose sand all the way.
800'-1000'	7	77	Vernie Jarl, Contractor *Gresham, Ore.*	3 "C's" on 410,000-yd., 5¾-mile relocation of Rt. 101 near Tillamook.	Sand, gravel, hardpan, clay and topsoil.	Material saturated by heaviest rainfall in U. S.
800'-1000'	16	160	Kiker & Yount, Inc. *Reidsville, N. C.*	3 "C's" move 170,000 yds. to level 7 acres . . . River Bend coal stockpile.	Red clay and white sandy loam.	Haul roads rough, spongy. 5% grade for 900' on return.
900'	20	Not Measured	Mike Welch, Contractor *St. Paul, Minn.*	2 "C's" handle 75% of 80,000-yd. road relocation in Wright County.	Black topsoil and yellow clay.	4 flowing springs in cut. Rain 14 days in 4 weeks.
1000'	11	121	Richter Bros. *Oroville, Calif.*	2 "C's" on 150,000-yd. raising and widening of Cousin Levee at Tulare Lake near Corcoran.	Lake-bottom gumbo.	Material heavy, sticky, hard to handle. 40' haul up 15%.
1000'	20	220	Frank T. Hickey, Inc. *Los Angeles, Calif.*	3 "C's" level 600,000 yds. for building sites and streets at Fort Ord.	Sand and sandy loam.	Good conditions.
1000'	18.2	216	Kiker & Yount, Idc. *Reidsville, N. C.*	2 "C's" on 1,500,000-yd. super-highway between Thomasville and Greensboro.	Red clay, sand, rock, small amount of shale.	Haul area spongy in spots.
1000'	20	200	H. E. Wolfe Construction Co. *St. Augustine, Fla.*	3 "C's" on 325,000-yd. relocation of State Rt. 50 between Clermont and Orlando.	Ball-bearing sand.	8 to 16% adverse grades in loose sand on return.
1000'	17	204	Les Travaux Souterrains *Tananarive, Madagascar*	2 "C's" on 523,000-yd. addition to Ivato Airport.	Sandy loam.	Negligible grades.
1000'	16	144	"Dirtmovers" *Minneapolis, Minn.*	2 "C's" grade 45,000-yd. addition to Wold-Chamberlain Airport, Minneapolis.	High-void soil, topsoil.	Normal. Material dry.
1000'	11.5	115	Green Construction Co. *Oaktown, Ind.*	3 "C's", 5 "Super C's" beat schedule 165 days on 500,000-yd. airport at Owensboro, Ky.	Heavy, water-logged clay.	Rains stopped all units except new Tournapulls.
1000'	11	115	Richter Brothers *Oroville, Calif.*	2 "C's" raise and widen 150,000-yd. levee at Tulare Lake near Corcoran.	Lake-bottom gumbo.	Heavy, sticky material. 40' of 15% adverse grade on haul.
1000'	12	114	Bill Crawford, Contractor *Buffalo, N. Y.*	2 "C's" grade 50,000-yd. shopping center site at Buffalo.	Clay.	Delay in pit with pusher handling 7 rigs.
1000'	10	100	Johnson Construction Co. *Litchfield, Minn.*	2 "C's" on 386,000-yd. widening of State Hwy. 5 between Victoria and Chanhassen.	Sticky clay loam and wet sand.	Heavy rains. Material, grades always wet.
1000'	10	105	J. G. Attaway Construction Co. *Statesboro, Ga.*	2 "C's" help move 100,000 yds. for highway between Tusculum and Egypt.	Sticky gumbo.	Turn on narrow road.
1050'	11	120	Elgin Butler Brick Co. *Elgin, Tex.*	2 "C's" load, mix, haul clay for brick plant.	Brick clay.	Dump load in small hopper.
1100'	19	213	Kelley Island Lime & Trans. Co., *Cleveland, Ohio*	2 "C's" strip 12" to 15" overburden from limestone quarry at Marblehead.	Loam with limestone.	Rough, winding roads. 10% adverse grade to dump.
1100'	17	204	J. W. Crowder & Associates *Houston, Tex.*	2 "C's" on 150,000-yd. dam and spillway on Sabine River near Gladewater.	Sandy clay and gumbo.	Unexpected rock, quicksand, flooded hollows.
1100'	8	104	Cia. Azucarera Vertientes *Cespedes, Cuba*	4 "C's" on 170,000-yd. earthfill dam in Central Estrella.	Hardpan, clay, and sand.	Haul up 3 to 25% grades.
1180'	14	146	Vial, Pascal y Tocornal *Santiago, Chile*	2 "C's" on 1,046,000 yds., 28.5 miles of Pan-American Hwy. Limari River to Tongoy.	Sand.	Dusty, abrasive, difficult material. Grades to 15%.
1200'	16	160	Park Construction Co. *Minneapolis, Minn.*	1 "C" handles 100% of 80,000-yd. street grading and widening job in Minneapolis.	Clay, loam, and sand.	Haul through narrow residential streets in open traffic.
1200'	15	150	Cureton Construction Co. *Tocoa, Ga.*	3 "C's" build 376,000-yd. fill across shallow lake for through-hwy. near Haines City, Fla.	Loose, hard-loading sand.	Haul 600' over sand, 600' over new roadbed.

***(Output figures reported here were made by 13 to 14-yd. capacity "C's". Present units have capacity of 16 yds.)**

these C Tournapull figures

HAUL one way	TRIPS per hour (per unit)	PAY YDS. per hour (per unit)	Name of Owner	Job Description	Type of Material	Job Conditions
1250'	12	125	Haley, Chisholm & Morris *Charlottesville, Va.*	1 "C" on 1,200,000-yd. railroad yard expansion at Russell, Ky.	Sand.	Rough, pitted haul.
1250'	9	103.5	Anderson & Davenport *Springfield, Ill.*	2 "C's" on 155,000-yd. grading for Murdale Airport near Carbondale.	Sandy loam.	Ideal weather, material, but rough haul roads.
1260'	8.2	82	Constructora Internacional *Santiago, Chile*	1 "C" on 1,000,000-yd. tunnel approach roads near Chacabuco.	All types, including rock.	Haul down 10% to 14% grade.
1400'	11	110	Ricardo de Varennes *Santiago, Chile*	3 "C's" on building of Concepcion-to-Lota highway.	Heavy clay, soft rock and sand.	Entire haul through open traffic.
1400'	11	110	Farnsworth & Chambers Co. *Houston, Tex.*	6 "C's" on 1,000,000-yd. Atascocita roads and bridges contract near Huffman.	Extremely dry sand.	Normal.
1475'	12	125	Vial, Pascal y Tocornal *Santiago, Chile*	2 "C's" on 1,046,000-yd., 28.5-mile section of Pan-American Hwy., Limari River to Tongoy.	Sand.	Dusty, abrasive, difficult material. Grades to 15%.
1500'	10	100	S. J. Groves & Sons Co. *Minneapolis, Minn.*	4 "C's" help complete 200,000-yd., 1.9-mile railroad siding near Hennepin, Ill.	Dirt, gravel and boulders.	Job handled in winter. Frozen material.
1560'	7.5	75	Farnsworth & Chambers Co. *Houston, Tex.*	3 "C's" on 510,000-yd. section of 55-mile Gulf Freeway between Houston and Galveston.	Heavy wet clay.	Material tough to load, spread.
1600'	9.5	114	A. F. Schams, Contractor *LaCrosse, Wis.*	1 "C" on 120,000-yd. overpass fill for U. S. 12 and 18 near Mauston.	Swamp sand.	Loaded under water. Haul up grades to 8%.
1600'	10.5	105	Haugenson & Tranby *McIntosh, Minn.*	3 "C's" move 862,000 yds. for 12.6-mile highway relocation near Denhoff, N. D.	Wet and dry clay with gravelly seams.	Fill area spongy after winter shutdown.
1750'	12	96	Elgin Butler Brick Co. *Elgin, Tex.*	2 "C's" self-load overburden in clay quarry.	Clay-seamed sandy loam.	Self-load down 18% grade. Return up same grade.
1770'	10	105	Vial, Pascal y Tocornal *Santiago, Chile*	2 "C's" on 1,046,000 yds., 28.5 miles of Pan-American Hwy., Limari River to Tongoy.	Sand.	Dusty, abrasive, difficult loading material. Grades to 15%.
1800'	11.5	115	H. W. Holt & Son *Columbus, Ohio*	3 "C's" on 650,000-yd. relocation of Ohio State Rt. 7 between Chesapeake and Proctorville.	Sandstone and heavy clay.	Winding 2 to 20% grades. Hauls through open traffic.
1980'	8	88	Vernie Jarl, Contractor *Gresham, Ore.*	4 "C's" work on 396,000-yd. runway extension at Portland Municipal Airport	Clay, sandy loam.	Hauling right after "shut-down" rain.
2000'	9	108	Nello L. Teer Co. *Durham, N. C.*	4 "C's" build 450,000-yd. embankment across swamp on U.S. 50, Washington-Annapolis.	Ocean silt and sand.	Steep cuts. Material dumped to displace soft swamp muck.
2000'	10	120	D. W. Winkelman Co., Inc. *Syracuse, N. Y.*	4 "C's" on 2,000,000-yd. western extension of Pennsylvania Turnpike.	Sand, gravel, and clay.	Good, except for bad weather which slowed project.
2000'	10	100	Westbrook & Pope *Sacramento, Calif.*	3 "C's" on 250,000-yd., 1.3-mi. relocation of State Rt. 1, south of Half Moon Bay.	Common earth and loose rock.	14 to 24% adverse grades on return.
2200'	7.5	71	John F. Walser, Contractor *Pontiac, Mich.*	2 "C's" grade 260,000-yd. plant site for Pontiac Motor Co. at Pontiac.	Yellow clay and sand.	Temperature 6° to 10° below zero. Frost 12 to 15" deep.
2400'	8.2	78	Moen Bros., Inc. *Moorhead, Minn.*	2 "C's" rebuild 370,000 yds., 13.3 miles of Hwy. 81 north of Shelly.	Tough, sticky gumbo.	Haul over rough, soggy roads.
2500'	10	100	S. J. Groves & Sons Co. *Woodbridge, N. J.*	4 "C's" on 4,192,000-yd. section of New Jersey Turnpike.	Sand and clay.	10% adverse grade out of fill; 2% favorable on haul.
2625'	14.3	163.5	Rogelio Viesca, Contractor *Mexico City, Mexico*	2 "C's" widen embankment for spur rail line to Pemex Refinery, Atzcapotzalco.	Compacted topsoil.	Hard, dry material.
2500'-2800'	7	73	Sugden & Sivier, Inc. *Hazel Park, Mich.*	5 "C's" level 600,000 yds. for new Chrysler Plant, Warren.	Sand and clay.	Rolling resistance 150 lbs.
2600'	7	77	Terry Bros., Inc. *Minneapolis, Minn.*	1 "C" fine-grades streets in St. Louis Park.	Sandy loam and topsoil.	Haul through traffic. Children playing in street.
2800'	6	57	SOCOL *Lisbon, Portugal*	2 "C's" on 981,000-yd. earthfill dam in Province Alentejo.	Heavy wet loam and clay.	Heavy rains, steep grades, restricted dumping areas.
3000'	9	95	Armstrong & Armstrong *Roswell, N. M.*	2 "C's" on 850,000-yd. relocation of U. S. 70-80 between Lordsburg and Deming.	Sandy loam.	No rain on job for 11 months; extremely dusty.
3100'	8-9	88-99	Thomas Scalzo Co. *Seattle, Wash.*	3 "C's" on 500,000-yd. roadway along Deschutes Basin in Olympia.	Hard-to-load sand, gravel, clay.	Bad weather. 600' of 10% grade on approach to cut.
3150'	4.8	48	Perkins & Barnes *Blackstone, Va.*	2 "C's" help grade 150,000 yds. for 1.5 miles of State Hwy. 6 near Geachland.	Red clay.	50% of return up 8% grades. Heavy traffic on part of haul.
3150'	9	99	Terry Bros., Inc. *Minneapolis, Minn.*	2 "C's" fill around new homes in Crystal Village subdivision near Minneapolis.	Dry clay loam and sand.	Rigs had to maneuver around buildings.
3600'	4	40	Swords-McDougal Co. *Peoria, Ill.*	2 "C's" on 110,000-yd. reconstruction of highway in Peoria.	Yellow and blue clay, sand, some rock.	Steep slope into narrow cut. "C's" must back into pusher.
3750'	10	100	Wylie Brothers *Albuquerque, N. M.*	2 "C's" handle 89% of 163,000-yd. highway job east of Hobbs.	Sandy clay.	Sharp turn onto highway, travel 3250' in traffic.
3750'	7.5	82.5	Nello L. Teer Co. *Durham, N. C.*	4 "C's" build 450,000-yd. embankment across swamp on U.S. 50, Washington-Annapolis.	Ocean silt and sand.	Steep cuts. Fill spread on swamp to displace muck.
4000'	8	80	R. V. McElroy Construction Co. *Decatur, Ill.*	1 "C" on 663,000-yd. relocation of U. S. Hwy. 40 near Greenup.	Clay.	Return 400' up 17 to 21% grades. Spongy fill.
4000'	6	58	KOTECA S.A. *Rio de Janeiro, Brazil*	3 "C's" grade 261,000 yds. for modern housing area in Deodoro, Distrito Federal.	Wet clay.	Working during tropical rains.
4100'	7.5	75	Mario Tamborindegui *Rio de Janeiro, Brazil*	4 "C's" on 850,000-yd. rail bypass in Rio de Janeiro.	Sandy clay and limestone.	Work during tropical rains.
4500'	5.5	60.5	G. F. Taft, Contractor *Northville, Mich.*	2 "C's" handle final grading on 1,000,000-yd. expansion of Wayne Major Airport, Detroit.	Sand, clay, and topsoil.	Thin cuts, shallow fills, good weather.
4750'	7	63	W. W. Clyde Construction Co. *Springville, Utah*	3 "C's" handle 85% of 770,000-yd. widening 10 miles of U.S. 30N near Cokeville, Wye.	Bank gravel and compacted clay.	High-void material. Altitude of 6200'. Open traffic.
4750'	5	50	S. J. Groves & Sons Co. *Minneapolis, Minn.*	4 "C's" do 200,000 yds. of ditching along 1.9-mile rail siding near Hennepin, Ill.	Dirt, gravel and boulders.	Job handled in early winter. Material frozen.
5000'	3.5-4.2	Not Measured	British Malayan Petroleum Co. *Seria, British Borneo*	3 "C's" haul sand to raise swampy oil field above flood level.	Beach sand.	Abrasive material, corrosive sea air and sea water.
5280'	8	80	J. H. Turpin Co. *Cincinnati, Ohio*	3 "C's" on 1,000,000-yd. levee and highway relocation at Cincinnati.	Blue and yellow clay.	Haul 300' down 10% grade, 1000' along busy highway.
5280'	4	40	Wylie Brothers *Albuquerque, N. M.*	2 "C's" on 60,000-yd. street improvement at Hobbs.	Hard-crusted sand and caliche.	2-mile cycle in town traffic with stop-light delays.
5280'	4	39	Entreprises R. Delbrassine *Mont-sur-Marchienne, Belgium*	3 "C's" on 242,000-yd. bypass near Waterloo on the Brussels-Charleroi highway.	Clay, sandy loam, and decomposed rock.	Heavy rains, deep mud.
5400'	6.75	68	Silva & Hill Construction Co. *Los Angeles, Calif.*	4 "C's" on 125,000-yd. relocation of Rt. 99 near Castaic.	Sand and clay.	Loading on slight downgrade in sidehill cut.
5650'	7	70	Constructora "El Aguila", S.A. *Mexico City, Mexico*	9 "C's" on 5,132,000-yd. Aleman Dam in Papaloapan River Basin.	Clay.	Tropical rains, hot weather. Many boulders.
5940'	5	Not Measured	John F. Walser, Contractor *Pontiac, Mich.*	2 "C's" grade, gravel 3 miles of access roads in Camp Grayling.	Gravel and sandy loam.	Loose, abrasive material.
7900'	3.2	32	Northwest Construction Co. *Seattle, Wash.*	4 "C's" on 250,000-yd. channel change and highway near Buckley.	Wet blue clay.	Very soft, wet footing. Climb grade out of cut.
7920'	4	48	A. L. Dyer & Sons *McBrides, Mich.*	3 "C's" on 5-mile, 210,000-yd. Hwy. 57 job west of Corson City.	Topsoil, clay, and fine dune sand.	Part of haul over existing highway through heavy traffic.
7920'	2.5	27.5	Hodge Mining Co. *Cartersville, Ga.*	4 "C's" strip overburden in mine 7 mi. north of Canton.	Heavy, ore-bearing clay.	Haul up 15% grades.
12 miles	1.5	18	Cia. Constructora, S.A. *Mexico City, Mexico*	4 "C's" on 6,500,000-yd., 155-mile section of International Highway, Nogales-Guadalajara.	Sand.	Traffic on haul.

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regulation of the construction industry. We believe that such an approach offers the possibilities of solving problems on private contracts, as well as public works contracts which are only a small part of the total construction volume."

1953 Legislation. So far at this session of Congress S. 848 has been introduced into the Senate by Senator Kilgore on behalf of himself and seven other Senators, which is identical with S. 2907 as it had been reported by the Judiciary Committee to the Senate previously. Four similar bills have been introduced in the House. There has been no indication yet what action the Senate or House Judiciary Committees will take. The A.G.C. has filed with the committees the request that if any action is to be taken on the bills that public hearings be held and the association be granted the opportunity to have its representatives testify.

Nationally there are no present indications that there will be cooperation between the various associations until the question of legislation has been settled. Many A.G.C. chapters in their areas are working with chapters of the various specialty and subcontractor associations and are making progress toward mutually satisfactory bidding and awarding arrangements.

The A.G.C. committee appointed to meet with N.E.C.A. has been continued as a committee to advise on subcontractor relationships.

Equipment and Repair Parts

Generally, adequate supplies of new and used construction machinery and equipment and repair parts have been available to the industry during the year, and the prospects are that available supplies will continue to increase gradually.

Close contact on equipment matters was maintained with government officials, and with the Construction Industry Manufacturers Association and the Associated Equipment Distributors.

Meetings of the joint cooperative committees with the manufacturers and distributors were held separately in April and November. Other meetings will be held in connection with this convention. Following the discussions the manufacturers are at work on improvements to repair parts booklets, and the distributors are at work on developing guides to assist contractors in ordering proper amounts of parts.

Ceiling price regulations for the rental and for the sale of new and used equipment had been brought more in conformity with industry practices by OPS before they were removed in February.

Machinery Standardization. Continued progress on the standardization of sizes and capacities and improvements in the quality of machinery were made by the Mixer Manufacturers' Bureau, which held its 29th annual meeting in December, and the Contractors' Pump Bureau, which held its 14th annual meeting the same month. Both groups are affiliated with the A.G.C. The association at its Mid-Year Board Meeting approved the 8th revision of the Contractors' Pump Standards, which subsequently have been published.

Labor Relations

The suspension on February 6 of the emergency wage and salary controls issued under the Defense Production Act of 1950 may be the start of a new era in the relationships between workers, employers and the federal government.

For the past twenty years policies and actions of the federal government have been more favorable to unions than to employers. The original Wagner Act was one-sided in its benefits to labor. The Labor Management Relations Act sought to bring more equality in the government treatment of unions and employers, but its provisions were weakened by biased administration.

While the labor policy of the new administration has not yet been developed or tested, the President in his message to the joint session of Congress has said:

"Government can do a great deal to aid in the settlement of labor disputes without allowing itself to be employed as an ally of either side. Its proper role in industrial strife is to encourage the processes of mediation and conciliation. These processes can successfully be directed only by a government free from the taint of any suspicion that it is partial and punitive."

In suspending the emergency wage control program the President stated that "the earliest possible return to freedom of collective bargaining in the determination of wages will serve to strengthen the national economy and thereby the national security."

Collective Bargaining. The return to free collective bargaining will give general contractors and the A.G.C. the opportunity for leadership in the establishment of wage rates and working conditions which are fair, equitable and reasonable.

There will be carried over into the bargaining negotiations this year the impetus of former government encouragement for higher wage rates. A survey conducted among A.G.C. chapters and directors before this convention reveals an almost universal pressure for wage increases.

The survey also indicates that general contractors are conscious of their responsibility to the owner for the over-all cost of construction, and of the need for keeping wage rates in line so that construction costs are not pushed above reasonable levels.

One of the particular effects of previous government action is the pressure for the establishment of health

and welfare funds before sound policies and procedures are developed.

This has grown out of the general policy adopted by the Wage Stabilization Board for all industry permitting payments to health and welfare funds in addition to wage increases. In 1952, over the strenuous opposition of general contractor representatives, the Construction Industry Stabilization Commission adapted this policy to construction to permit payments of as much as 7.5¢ per hour for such funds in addition to allowable wage increases. This forced many unsound funds onto the industry in various communities.

The A.G.C. was a leader in securing establishment of CISC as a commission, composed of men familiar with the peculiar problems of the construction industry, to administer government wage policies for the industry.

In helping to establish and operate CISC, the A.G.C. was continuing its policy of working for the administration of emergency controls in a manner which would cause the least interference with normal industry practices. The CISC did fulfill the function of providing realistic consideration in applying the W.S.B. policies to construction.

One of the heavy burdens of the association during the past year was to prepare information for the assistance of general contractor representatives of the commission, and to assist chapters and members in presenting their cases.

Suspension of government wage controls does shut off a source of information on wage rates and bargaining arrangements in various parts of the country, and the national association and chapters are faced with the problem of developing such information in the future.

Taft-Hartley Act. Labor laws which have been enacted in the past are still on the books. It is too early yet to know how the new Administration will administer them.

Congress has started a complete reexamination of the Taft-Hartley Act. So far this session 55 bills have been introduced to abolish or amend the act. The action which Congress will take, if any, cannot yet be foretold.

The House committee has started extensive public hearings. The Senate committee has indicated that it may delay its hearings until the Administration presents its recommendations. As this report was being prepared, the Advisory Board composed of representatives of the public, labor and industry, which had been appointed to advise the Secretary of Labor on changes in the law, had come to no agreement and there was the possibility that it would come to none.

One of the bills introduced by Senator Taft, S. 656, would amend the law for the construction industry by permitting collective bargaining agreements prior to hiring of employees, and permitting union security agreements without the necessity of holding elections. It also would reduce from 30 to 7 days the time a man could work without joining a union, and as presently proposed could be interpreted as permitting union shop agreements regardless of state laws to the contrary. The bill is similar to, but not identical with, S. 1973 which passed the Senate last session but was not acted on by the House. A similar bill (HR 318) has been introduced into the House this year.

Because of the multiplicity of proposed amendments resulting in divergent opinions of A.G.C. members and chapters, the Executive Committee has recommended that, at least until there is a clear-cut expression of A.G.C. opinion, the national association furnish complete information to the chapters and members in order that they may support or object to such proposals as they see fit, but that it should not seek to testify as representing a majority opinion at this time.

Jurisdictional Board. The National Joint Board for the Settlement of Jurisdictional Disputes has continued to operate effectively in reducing the number and duration of work stoppages resulting from jurisdictional disputes. Competent witnesses have told Congressional committees that this board has saved workers, employers and the public countless millions of dollars in preventing strikes and stoppages.

Presidents of the international unions of the Building and Construction Trades Department further encouraged success of the board's operations by establishment of a policy last July to prohibit picketing in jurisdictional disputes.

Minor changes in the board's procedures have been recommended by the unions, and negotiations of an A.G.C. and other employer committees with Department representatives in Boston and Miami indicate that these will be acceptable to employers. The board will then continue and indications are that groups which had withdrawn from the board last year may return.

Through successful operations of this board unions and employers, for the most part, have prevented government interference with this phase of their relationships.

Prevailing Wages. Any reorganization in the Labor Department to be effected by the new Solicitor will be of interest to the industry with respect to changes in the administration of the Davis-Bacon Act under which the Secretary of Labor is required to predetermine the wages which are prevailing in areas of federal or federal-aid projects.

At the past annual convention and Mid-Year Board Meeting the A.G.C. repeated its request that the Department give realistic consideration to the wage scales which are actually prevailing in the locality, and to maintain the historic differentials which have been recognized between building construction and highway and heavy con-

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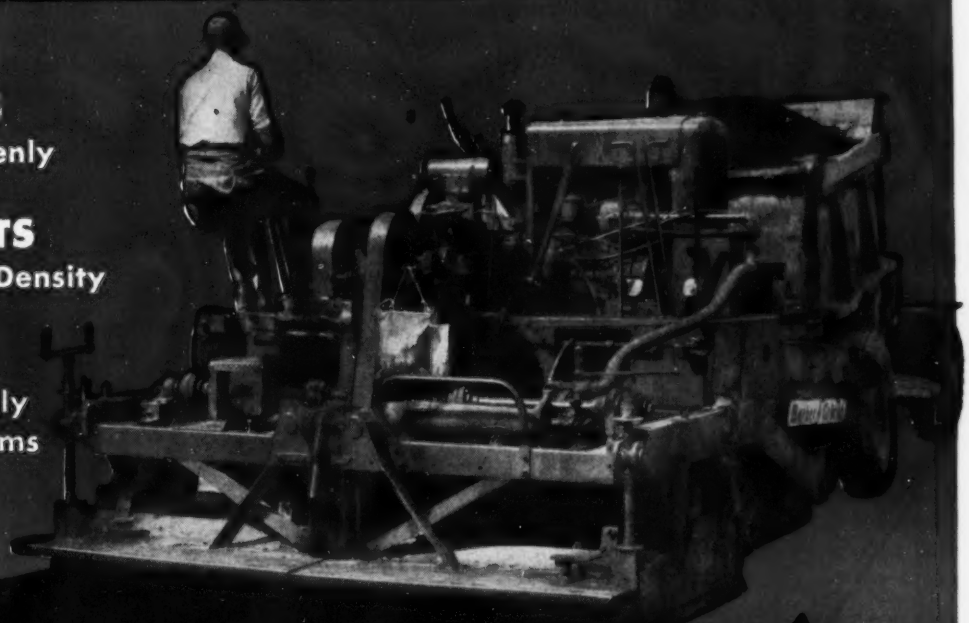

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As the number of defense projects has increased, the work of the national association in sending out information and the work of chapters in seeking the predetermination of actual prevailing wages has become heavier. Complaints of predeterminations of incorrect wage rates had increased during recent years.

The day-to-day unspectacular but effective work of giving assistance to chapters and members in their particular problems has continued to increase during the year. The staff is being increased so that its work can continue to be handled effectively.

Special commendation is deserved by the men who have been members of boards, commissions, committees and have taken part in the negotiations to establish and administer sound labor policies in the industry.

Accident Prevention

The association's program to encourage and to assist members and chapters in establishing effective safety programs has been expanded during the year. The Executive Committee has authorized further expansion next year.

Two fundamental beliefs have guided the A.G.C. program. First is that sound safety measures can prevent injuries and the loss of life, and each dollar wisely invested in this manner leads to more economical operations. The second is that voluntary accident prevention measures can be more effective and are more economical than those imposed by governmental regulation.

Members have been encouraged to learn the facts of the effectiveness of their own safety measures by sending monthly reports on their accidents to the national office where the results can be tabulated and at the end of the year the member can see how his record, shown by a key number, compares with that of others. There are now ten times the number of members doing this than there were in 1942, and the number increased 75% in 1952.

At this convention more than 50 merit awards will be given to members with outstanding safety records, and certificates will be given to 150 who had no lost time accidents during the year.

Steady progress has been made during the year by members, chapters and the national association in industrial safety, but far greater savings of life and money can be made. The A.G.C. was one of six national associations given an award for "exceptional service to safety" by the National Safety Council at the National Safety Congress last October.

Cooperative Work. Much of its work is accomplished by the association in cooperation with others. There has been a liaison committee of safety engineering of the stock and mutual associations of casualty insurers. About half of the members of the Executive Committee, Construction Section, of the National Safety Council are connected with A.G.C. firms or chapter or national staffs. A liaison committee of the A.G.C. Secretaries' and Managers' Council and Accident Prevention Committee has been helpful in securing greater chapter participation.

The A.G.C. *Manual of Accident Prevention in Construction* was republished last year as approved as an American standard by the American Standards Association. The manual, and the pocket-sized reprints of various sections which can be used on the job by foremen, workmen and others, are getting greater recognition as valuable helps in safety programs.

There is still the hazard that Congress may consider the enactment of some form of legislation to grant the federal government authority to enforce prescribed industrial safety regulations unless employers take effective voluntary safety measures.

Building Construction

The relaxation of construction controls has stimulated the planning and construction of school, commercial and institutional projects so that there is the potential for a somewhat greater market for building contractors in 1953 than during the past year.

The principal function of the Building Contractors' Division has been to take action on matters of particular interest to building contractors, and to supply appropriate information to members and chapters.

Cooperative Work. Much of the division's work is done in cooperation with other societies or associations. Matters of particular interest to building contractors and architects were considered at the meeting of the national joint cooperative committee of the American Institute of Architects and A.G.C. held last year. Another meeting will be held this spring.

Committees of A.I.A. and A.G.C. have been considering revisions to the A.I.A. standard form for private fixed-fee contract. When work is completed the document probably will be submitted to the A.G.C. for endorsement.

As a result of discussions of the joint cooperative committee of the Producers' Council and A.G.C., arrangements are being made by chapters of the two organizations for educational programs to inform contractors about new materials.

Government Contracts. The Veterans Administration has changed some of its contract procedures, principally to give more authority to its field representatives on projects, following conferences with the A.G.C. which reviewed complaints of contractors.

Improvements have been made in specifications for Corps of Engineer projects after a conference at which A.G.C. representatives pointed to the excessive number

of matters which were left to decision of the contracting officer and could have been settled before bidding.

Research. A number of A.G.C. representatives participated in work of panels for the development of a comprehensive study on conservation of building materials which the Building Research Advisory Board of the National Academy of Sciences prepared for the Defense Production Administration. While intended primarily as a guide to conservation during the defense program the study has been found to be a "guide for the general advancement of building technology."

The principal results of the study of interest to building contractors have been published in THE CONSTRUCTOR. Other A.G.C. representatives participated in a BRAB study of prestressed concrete and school design and construction.

An exploration was made of the views of contractors, architects and materials producers on the modular coordination method of designing structures and manufacturing materials, and the results were published in the magazine as a contribution to a greater understanding of the method.

Apprentice Training. Upon recommendation of the Federal Committee on Apprentice Training, for all industry, and the General Committee on Apprentice Training for the Construction Industry, on both of which the A.G.C. is represented, the Military Selective Service System adopted a regulation for the deferment of bona fide apprentices.

Information on how employers can use the regulation, and information on use of the G.I. Bill for Korean veterans in apprentice training programs, has been sent to chapters and members.

While there has been a decline in the number of apprentices in training, a survey by the association showed that most A.G.C. building chapters are participating in one or more programs.

The association has established a National Joint Apprenticeship Committee with the United Brotherhood of Carpenters and Joiners of America, and the first meeting was held in A.G.C. headquarters in January. Publication of revised national joint standards is expected soon.

The National Joint Cement Masonry, Asphalt and Composition Apprenticeship Committee of A.G.C. and the Operative Plasterers' and Cement Masons' International Association of the U.S. and Canada has completed review of new national standards which will be published by the Bureau of Apprenticeship this year.

The increasing number of requests from students, vocational schools, libraries, employment counselors and others interested in the outlook for jobs in the building and construction trades emphasizes the need for A.G.C. to develop a document which will supply the information and encourage qualified young men to enter the industry.

Highway Construction

The fact of primary importance with respect to highway construction is that new construction has not kept pace with the obsolescence of our highway system, the increasing volume of traffic, or the needs of safety.

New highway, road and street construction by all federal, state and local governmental agencies has been gradually increasing and reached a total of somewhat more than $2.5 billion in 1952.

Replies to a survey by A.G.C. directors and chapters reveal the expectation that a greater number of projects is expected to be undertaken this year.

But the fact that engineering studies have shown that from $50 to $60 billion is needed in new construction to raise the highway system to adequate standards accents the need for far more highway construction.

This need raises the problem of bringing about public understanding of the needs, and a willingness to authorize necessary expenditures. It also emphasizes the need for public confidence in the fact that full value is received for the expenditure in construction.

Because of the great needs more consideration is being given to toll roads. A recent survey shows that 22 states now have or are studying the feasibility of toll highways. The President has recently announced the appointment of a commission to study the entire question of highway financing.

At the same time the advance planning of highways is being hampered by the shortage of engineers.

Highway Funds. During its past session the Congress passed a highway bill which authorized $575 million for federal aid to the states for each of the next two fiscal years, and other annual federal expenditures of $149 million. Thus federal highway expenditures for these fiscal years will be approximately $724 millions while revenues from federal excise and gasoline taxes will be approximately $2 billion. The government originally had recommended only $400 million in federal aid.

During public hearings on the legislation the A.G.C. testified before both the Senate and House Public Works Committees supporting the recommendations of the American Association of State Highway Officials, and presenting evidence that highway contractors had more than ample capacity to execute all highway construction promptly, efficiently and economically.

The association is represented in the "Project Adequate Roads" program through which many groups are drawing public attention to highway needs. Highway chapters are active with groups sponsoring better highways.

A continuing project of the association and its chapters has been vigorous support of the contract method

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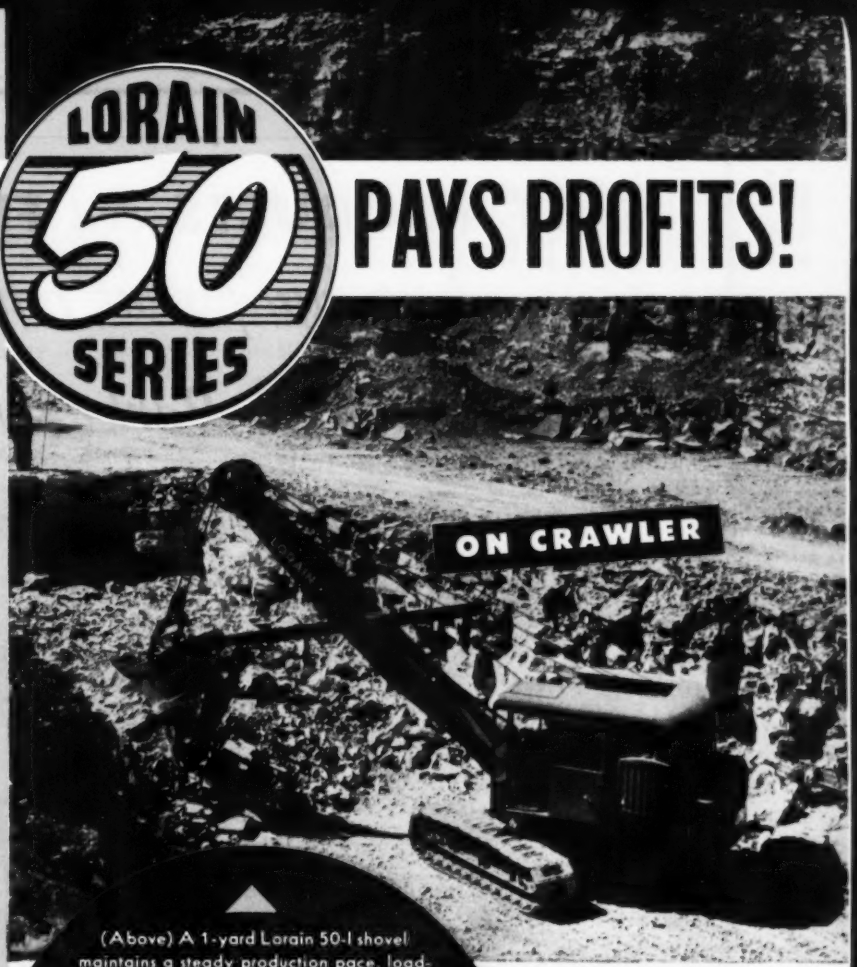

(Above) A 1-yard Lorain 50-I shovel maintains a steady production pace, loading out tough quarry rock for Foster, Alder and Wright of Fayetteville, Tenn. In rock work like this, the Lorain Hydraulic Coupling puts full engine power to work. Shocks and impacts can't be transferred into mechanism or cables.

(Below) The fast stepping, 30-ton Lorain Moto-Crane, Model MC-524, is helping to build 24 piers and 4 abutments for twin bridges for the Ohio Turnpike between Peninsula and Boston, Ohio. The Horvitz Co. of Cleveland find the 30 m.p.h. mobility a money-making asset in moving to many job locations on this big road job.

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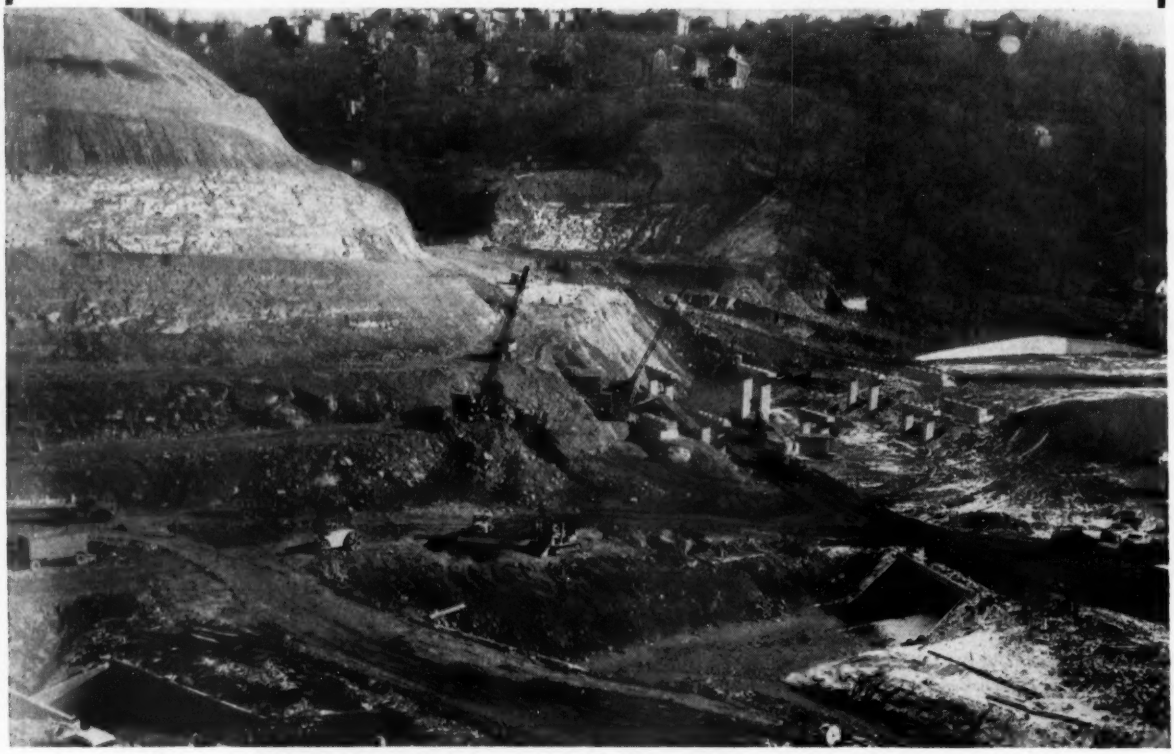

Dinardo, Inc., Pittsburgh, Pa. has the contract from the Pennsylvania Department of Highways for construction of the Saw Mill Run Interchange on the Penn-Lincoln Parkway West. The job involves moving 750,000 cu. yds. of earth and building 6 structures. This is one of several important Dinardo contracts in connection with Pittsburgh's huge Penn-Lincoln Parkway project.

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of construction. There have been no major day labor threats on a national scale. More than 99% of all federal-aid construction is executed by contract. Each year more states and other governmental agencies are taking advantage of the economy of highway maintenance by contract.

Highway Officials. Constant contact has been maintained with federal and state highway officials. Since the last convention eight meetings of highway contractors and state and federal highway officials have been held as part of the program of the joint cooperative committee maintained by A.A.S.H.O. and A.G.C. These meetings have been held in conjunction with annual meetings of the two associations, or regional associations of highway officials in various parts of the country.

At these meetings there have been valuable discussions on the advantages of maintenance and construction by contract; advance planning of highways and means of securing sufficient engineers; improved specifications and administrative procedures; higher salaries for highway engineers; and many suggestions for achieving greater economy in highway construction.

The association has conducted surveys and has furnished chapters information on policies and procedures of state highway departments in paying partial estimates and requirements for bid guarantees.

Airports. The great increase in air travel in recent years has brought about the need for more airport construction and facilities for greater safety.

Through the joint cooperative committee of the National Association of State Aviation Officials and the A.G.C. study has been given to the means of expediting and financing airport construction; more prompt payments to contractors for work completed on projects; simplification of administrative procedures; and more uniformity on airport and airbase specifications by the various federal agencies.

The association has consulted with the Rural Electrification Administration on the simplification of contract documents, more extensive use of the contract method, and partial payment for materials delivered but not yet incorporated in the project.

The A.G.C. recommended to the Bureau of Internal Revenue clarifications which were made in its regulations for payment of the diesel fuel tax for fuel used in vehicles moving on highways but not for equipment used in highway construction.

Heavy-Railroad Construction

The volume of construction for heavy construction and railroad contractors continued at a high level during the year and the potentials for 1953 are encouraging.

The continuing work of the Heavy Construction and Railroad Contractors' Division has been to give particular attention to the interests of such contractors in solution of industry problems.

Possible reorganization of federal agencies and the development of a policy on natural resources by the new Administration may have a direct effect on activities of heavy construction contractors.

The President in his message to the joint session of Congress discussed resource development briefly, calling for a "strong federal program" whose "major projects should be timed, where possible, to assist in leveling off peaks and valleys in our economic life." He also stated:

"The best natural resources program for America will not result from exclusive dependence upon federal bureaucracy. It will involve a partnership of the states and local communities, private citizens and the federal government, all working together."

He reported that the whole matter of overlapping federal activities in resources development will be studied.

Task Units. Excellent relationships have been developed and accomplishments of benefit to the government and contractors have been achieved by task units of the A.G.C. Committee on Contract Forms and Specifications and governmental agencies.

One unit met last May and in February with the engineering staff of the Bureau of Reclamation in Denver. At the latest meeting there was discussion of a 14-point agenda, and further progress was made on improved specifications and procedures leading to more economical construction. President Horner addressed a meeting of Reclamation engineers last month.

Another unit has met twice since the last convention with the Navy Bureau of Yards and Docks for the discussion of such subjects as bidding errors, risks to be assumed by contractors and the Navy, damages suffered by contractors because of delays of the government, performance bond fees, and specifications.

A third unit last October was invited by the Army Corps of Engineers to review proposed new guide specifications for concrete and standard practices for concrete before the documents were issued. A number of improvements were recommended by the A.G.C. representatives.

Contracts. An A.G.C. subcommittee, working in cooperation with the American Society of Civil Engineers, has completed recommended revisions in the standard form of engineering contract which has not been changed since 1925.

Upon invitation of the American Railway Engineering Association, A.G.C. representatives have made suggestions for the improvement of standard railroad construction contracts.

Municipal Construction. As recommended by the division a national joint cooperative committee has been established with the American Public Works Association to serve as a means for consideration of matters of mutual interest in municipal construction. The committee held its first meeting in January.

National Legislation

Although there has not yet been time for the new Administration to complete its legislative program it is evident that many matters of direct interest to general contractors will come before Congress this session.

The President has stated many times his belief in free initiative and the necessity for government to treat all people equitably, but there is no evidence that there will be a sweeping repeal or revision of existing laws.

The association, in continuing to carry out its legislative policies, will keep members and chapters informed of developments of particular interest, and will present information about the industry and the effect of proposed legislation to the appropriate committees and members of Congress.

Balanced Budget. One of the knottiest problems which this Congress will face is balancing the federal budget. Government agencies are now reviewing all proposed expenditures recommended for the next fiscal year as submitted by the previous Administration.

When the reviews have been completed new recommendations will be made and the Congress can start the active work of preparing annual appropriation bills. It is likely that appropriations will be cut to some extent, but doubt is increasing among government executives and members of Congress that the budget can be balanced during the fiscal year starting July 1.

Closely related to the budget are taxes. The President has told Congress that taxes should not be cut until the budget is under control.

Unless Congress acts, the excess profits tax will expire June 30, and income tax increases on December 31. The House Ways and Means Committee has approved a bill to terminate both taxes June 30. The outcome is in doubt.

The Secretary of Treasury has undertaken a review of the entire tax structure. If action on correcting inequities in taxes is possible, the association has the opportunity to seek correction of a number of inequities for general contractors.

Again this year the association has taken the lead in seeking legislation to assure the right of judicial review of disputes arising from federal contracts. It has filed notice of its desires to be heard on legislation for the naming of subcontractors. If legislation is considered for federal regulation of industrial safety, the association will express its views to appropriate committees.

National Defense

Construction for the national defense will continue to be an important responsibility of the industry. While all federal expenditures are now being reviewed, it is likely that during the year defense construction expenditures will increase to some extent.

Throughout the mobilization program the association has been in constant contact with defense agencies, and has been of substantial assistance in providing information helpful in determining policies which make most effective use of the construction industry.

The association also has been consulted by Congressional committees on possibilities of minimizing the impact of big defense projects on communities, and use of construction organizations in the defense work.

Although there have been occasional sensational charges of waste or inefficiency by contractors in defense construction, subsequent thorough investigation by Congressional committees have revealed that contractors have made outstanding contributions to the defense effort, and have executed a vast amount of work efficiently under the most difficult of circumstances.

Affiliated Units. Outstanding engineering feats were executed in the Korean campaign by two engineering units which were sponsored by A.G.C. chapters in cooperation with the Corps of Engineers in the Army Affiliation Program.

At present 75 units have been sponsored, of which 21 are on active duty. Ten are on duty overseas. By providing men specially trained for their military duties by their civilian construction experiences, these units have been of inestimable value to the Army.

Civil Defense. The association has continued its cooperation with the Federal Civil Defense Administration in planning for making most effective use of construction organizations in the civil defense program.

The immediate mobilization of general contractors and their forces to fight floods in the Middle West last spring and to restore essential facilities to usefulness following the California earthquake were additional examples during the year of the ability of contractors to protect and repair the nation's physical facilities.

Industry Relations

After the conclusion of World War II, the A.G.C. revived and expanded its long-range program of working for an improved construction service in cooperation with the professional societies and other national associations in the industry.

This program has been founded and carried out in the concept that periodic meetings of national joint cooperative committees of the A.G.C. and other organizations can serve as a medium for the interchange of information

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You're assured new pump efficiency for the lifetime of the pump because...

ONLY REX HAS THE ADJUSTABLE AIR PEELER!

Every self-priming, centrifugal pump must have an air peeler to remove air from the suction line and create the vacuum that draws water up to the impeller. Normal wear on the peeler and fast-moving impeller destroys the necessary close clearances between these parts . . . reducing both priming and pumping efficiency.

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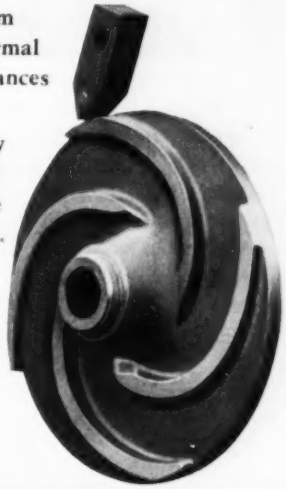

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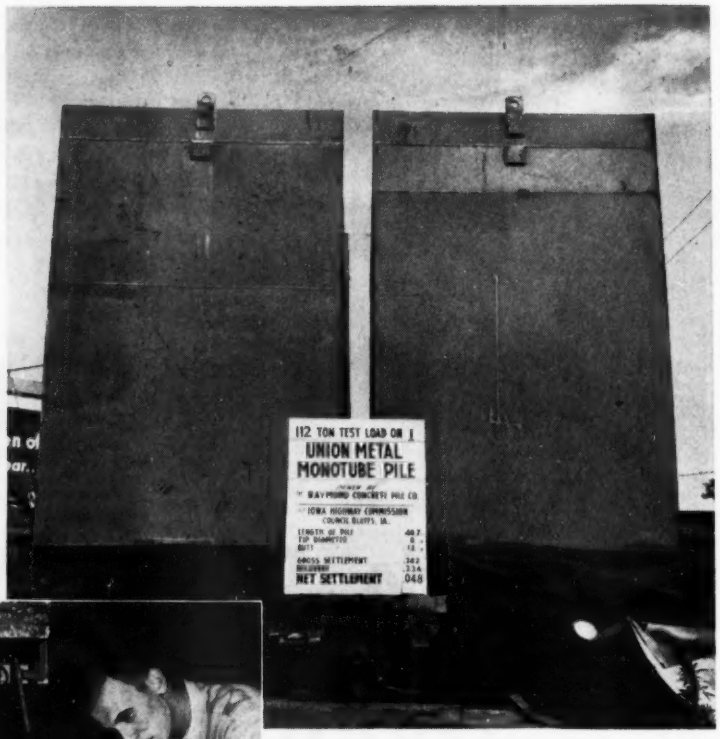
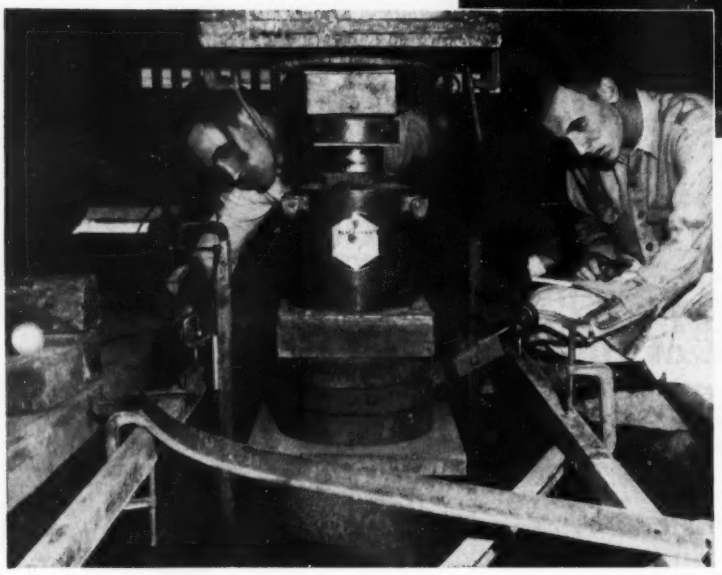
CONSTRUCTION MACHINERY

Predesign pile loading tests





▲ Above: Four large water-filled steel tanks provided a dead load exceeding 120 tons in recent friction pile tests for the Iowa State Highway Commission.

◀ Left: During Monotube testing, dial readings were taken at specified time intervals as load increments were applied. Scales shown are only two of several reference points on instrumentation framework, which were checked by wye level each time readings were taken.

PREPARATORY to designing an overpass near Council Bluffs, the Iowa State Highway Commission conducted a series of pile loading tests. Careful engineering preparation and unusually thorough instrumentation provided highly accurate test results.

A 40-foot Monotube in fine brown sand was loaded to 112 tons with a settlement of only 0.048 inches. Specified load increments were applied by means of a hydraulic jack bearing against the 120-ton dead-weight of 4 water-filled steel tanks.

If you have foundation problems coming up, check with Union Metal for helpful engineering service . . . for accurate Monotube pile test data . . . and for the latest information on modern, easy-to-drive piles that can save you plenty of time and money. Write to The Union Metal Manufacturing Company, Canton 5, Ohio.

Monotube Foundation Piles

UNION METAL

and ideas on matters of mutual interest, that they can lead to a better understanding of the problems faced by the respective groups, and that they can serve as the means for concentrating the best thinking of the various segments of the industry on common problems.

Since the last convention 31 meetings have been held of these various cooperative committees. The committees have no authority other than to study matters of mutual interest between the A.G.C. and the particular society or association, and make recommendations to the parent organizations.

The experience of these committees during recent years has demonstrated that their meetings have led to a clearer understanding of points on which the respective organizations agree, that discussions have cleared up misunderstandings, and that recommendations have been made which are of substantial benefit to all concerned.

The individuals who have travelled to these meetings at their own expense deserve the appreciation of the entire industry for their contributions to its improvement.

The latest joint cooperative committee established during the year was with the American Public Works Association for the consideration of matters of mutual interest in municipal construction. Other organizations with which committees are maintained are:

American Institute of Architects
American Society of Civil Engineers
American Association of State Highway Officials
National Association of State Aviation Officials
Construction Industry Manufacturers Association
Associated Equipment Distributors
Producers' Council
Surety Association of America
National Association of Mutual Casualty Companies
Association of Casualty and Surety Companies

Other Cooperation. Aside from joint cooperative committees, other national organizations on which the A.G.C. is represented and with which it cooperates are:

Eight national associations of subcontractors and the Building and Construction Trades Department of the American Federation of Labor in operation of the National Joint Board for the Settlement of Jurisdictional Disputes.

American Society for Testing Materials, American Standards Association, Chamber of Commerce of the United States, Construction Industry Advisory Council, Joint Conference on Standard Construction Contracts, Building Research Advisory Board and Highway Research Board of National Research Council, National Safety Council, American Concrete Institute, American Trade Association Executives, and National Highway Users Conference.

Government Cooperation. A.G.C. representatives during the year also have served by appointment on advisory committees or other committees for agencies of the federal government including:

National Bureau of Standards; National Production Authority; Office of Price Stabilization; Construction Industry Stabilization Commission of the Wage Stabilization Board; Housing and Home Finance Agency; Federal Civil Defense Administration; Advisory Committee on Construction Statistics to the Bureau of the Budget; Federal Committee on Apprentice Training; General Committee on Apprenticeship for the Construction Industry; National Joint Bricklaying Apprenticeship Committee; National Joint Cement Mason Apprenticeship Committee; and the Business Research Advisory Committee to the Bureau of Labor Statistics.

Centennial of Engineering. In September A.G.C. representatives took part in the Centennial of Engineering in Chicago and paid tribute to the American Society of Civil Engineers on its 100th anniversary, where there was a joint meeting of the society's Construction Division and the A.G.C. Several A.G.C. members addressed the sessions.

Chapter Relationships. Many of the chapters maintain joint committees or carry on cooperative work in other ways with professional societies, industry associations, and governmental agencies in their areas. Their activities are too numerous to record here, but they are making valuable contributions toward better relationships and a more efficient construction industry.

Educational Institutions. During the past year there has been a continued increase in the cooperation between members, chapters and the national association with architectural and engineering schools. Contractors have felt the need for young engineers with a broader education than the fundamentals of design, and have been working with colleges and universities on the development of curricula embracing various phases of construction operations. More chapters are granting scholarships to students, or otherwise giving financial assistance to educational institutions so that the growing needs of the industry for well-educated men can be more fully met.

Public Relations

Five years have elapsed since the national association adopted a coordinated public relations program. During that time substantial progress has been made on the program in securing wider public recognition of the skill, integrity and responsibility of A.G.C. members.

The program is an integral part of all A.G.C. work and the techniques of public relations are used to make the association's activities as effective as possible.

Emergencies of the mobilization program have made it essential that members and chapters be kept informed of

industry developments and of A.G.C. actions promptly, completely and accurately.

The information which they have received has enabled chapters to become the principal source of reliable information on construction in their communities, and this has enhanced their prestige and effectiveness.

During the year the staff has been increased, and work has continued on projects of long-range benefit. There has been constant planning for future activities.

National News-Letter. Since 1949 the *National News-Letter* has been published at frequent intervals to bring important information to members as tersely as possible. Accuracy and reliability of the information have been stressed.

The Constructor. Publication of the magazine continues as the greatest single activity of the public relations staff. The principal circulation of the magazine is to A.G.C. members. The national association also sends copies to policy-making executives in federal agencies important to the industry, to other national associations in the industry, and to architectural and engineering schools to keep them informed of A.G.C. activities.

Many of the chapters have found that taking out subscriptions for architects, engineers, associate members, public officials, and other groups with which they maintain contact is a valuable investment.

Other Documents. Many documents are required by the association for carrying out its work. In their publication the association is assisted by the Lewis Edwin Ryan agency in Washington, which also handles the association's advertising. In all of its publications the association constantly has been improving its techniques so that quality work is being secured more economically.

During the year the *A.G.C. Manual of Accident Prevention in Construction* was republished as approved as an industry standard by the American Standards Association. Pocket-size reprints of various sections of the manual have proved useful in company safety programs.

Source of Information. As the A.G.C. has gained in size and prestige there has been a marked increase in the number of requests from members and chapters, government agencies, other industrial groups, publications, educational institutions for information about the industry.

During the year a start was made on a research program, in which many members of the A.G.C. staff are participating, so that the association can more adequately supply the information which is expected of it.

There has been a notable increase in the number of requests from engineering schools for information and for assistance in developing their curricula to include more courses about construction operations.

Facilities of the staff were increased for improved handling of press relations.

Advertising. A small program of paid advertising has been continued as the most economical method of bringing a brief message to the greatest number of people. The advertisements have been in publications circulated to men having influence in the award of construction contracts. The advertisements have been another step in carrying out part of the A.G.C. program.

Future Work. Further conferences will be held in connection with this convention with representatives of the A.G.C. Secretaries' and Managers' Council on plans which have been developing for providing greater assistance in developing their public relations programs.

An expanded A.G.C. accident prevention program can be substantially aided by increased public relations activity in that field. The need also is becoming more acute for the A.G.C. to develop information on the outlook for jobs in the construction trades for distribution to schools, students and others.

An evaluation of progress made on the program during the past five years and the potentialities for future work has been prepared for consideration by the Public Relations Committee at its meeting prior to this convention.

The National Association

With this convention the association concludes another year during which its membership, its volume of constructive work, its prestige and that of its members again have reached new high levels.

The number of memberships held in the national association at the end of 1952 was 6,292. With the exception of temporary declines during the Twenties and Thirties, the growth of membership has been steadily upward and has been uninterrupted since 1939.

For most of the period since the last convention the industry continued under emergency controls of the mobilization program, and the A.G.C. in line with its policy took steps to bring them in line so far as possible with normal industry practices.

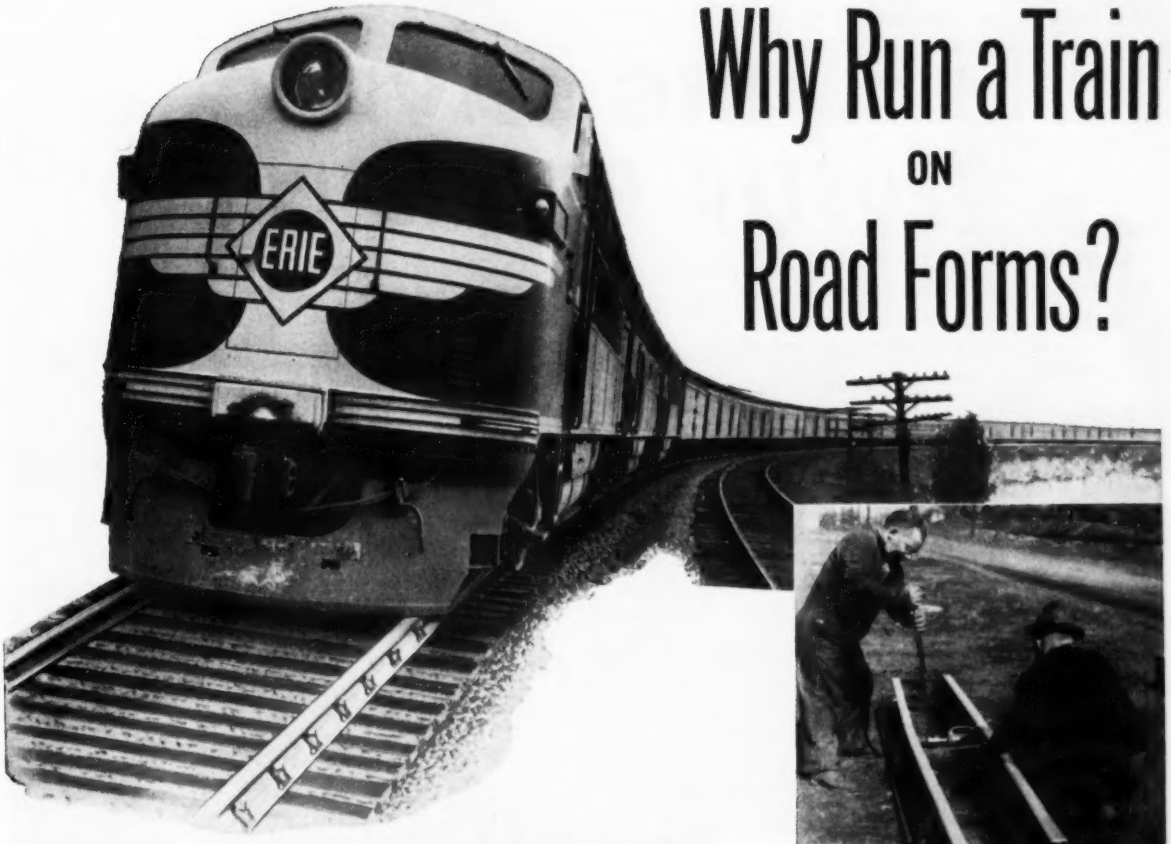
The removal of these controls, and a new atmosphere of government, offers the association a great opportunity for constructive work of long-range benefit to the industry and the nation.

Meeting emergencies of the mobilization program, continuing work on projects of long-range benefit, serving an increasing membership, and increasing recognition of the effectiveness of A.G.C. activities combined to bring about heavier demands for association services.

During the year this strained the facilities of the association, but for almost every major problem to face general contractors the association took positive action, and kept members and chapters informed on developments and A.G.C. actions promptly and accurately.

Association's Program. The association's program has been under constant study by the officers, members

Why Run a Train ON Road Forms?



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Heltzel believed they built the strongest, most serviceable road form in the world. They decided to submit their form to a series of grueling tests to find out just how much abuse it could take.

First of all, they bolted a Heltzel form to a similar form of another make. Inserting a jack at the center point they applied pressure to compare bending moments. The Heltzel form remained rigid while the other form weakened and bent to the pressure.

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Finally, they set up two lines of Heltzel forms and backed a loaded freight train over them without a sign of failure.

What does all this prove? Simply that when you buy Heltzel forms you're getting the best that money can buy at no increase in price. A road form must be able to withstand punishment year in and year out, with replacement held to a minimum. That's why Heltzel engineers have gone to such great lengths to design and build and to prove the Heltzel form is the finest ever made.

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"The BIG SAVING was FOSTER RENTAL PILING"

On complicated 3-sided cofferdam for the $5 million East Bronx Unionport Bridge Construction.

Says John Ury, Project Manager for Contractors:

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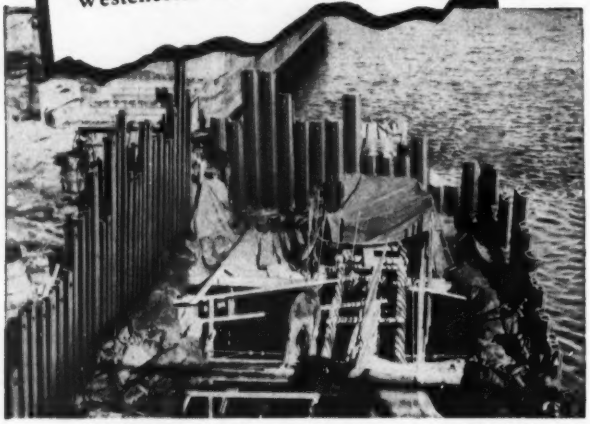
Construction started in 1949, and skillful driving of 30 to 45 ft. Interlocking Steel Sheet Piling by these 2 contractors made this an economical, successful job. Unionport Bridge crosses Westchester Creek in East Bronx.



Rental Piling had to be driven considerably below the bed of the creek, with extra reinforcing to protect against swells.

An interesting installation of piers had to be constructed atop 35-year-old existing caissons. Here was a tough water seepage problem in a complicated 3-sided cofferdam — approximately 1,000 gpm had to be pumped out of the cofferdam by two 6-inch pumps. Steel Sheet piling was needed — on time — in the exact section and lengths (30 to 45 feet). And Foster had it — just what the job required. A phoned order — a prompt delivery, a dependable quality — and a low cost, requiring no huge purchase investment on the part of the contractor, made FOSTER RENTAL PILING the 100% answer for this job.

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of the Executive Committee and staff. President Arthur S. Horner and Vice-President C. P. Street throughout the year have been in almost daily contact with the national office by telephone or personal visits. They have traveled extensively to meet with chapters.

Members of the Governing and Advisory Boards, chapter presidents and managers, and others studied industry developments and reviewed the association's program at the Mid-Year Board Meeting held at White Sulphur Springs, West Virginia, September 8-10, 1952.

The Executive Committee has held meetings in Washington last year in April and November, and this year in February. It also met in Colorado Springs last July in addition to meeting at the Board Meeting and annual convention.

Meetings of government committees or commissions have brought many members to Washington for consideration of important industry and association problems.

Throughout the year much important work has been done by chairmen and members of A.G.C. committees, task units, joint cooperative committees, industry advisory committees, or by other means.

National Office. With all members of the staff taking on added work and responsibilities they were able to accomplish the task of meeting emergency developments and of making progress on long-range activities.

Additions were made to the staff during the year. A greater number of staff members were able to make more frequent visits to meetings of chapters, groups of chapters, or other industry groups. Direct contacts were made by staff members with more than 100 chapters during the year.

Additional office space was acquired last summer for the increased staff and facilities needed. Included in the space is a conference room in which the Executive Committee, joint cooperative committees, and other groups have met. A feature of the room is a conference table presented to the association by the past presidents.

There has been constant planning on how to carry out all essential work and to increase the effectiveness of association activities.

Chapters and Branches

In this report it is not possible to record the accomplishments of chapters and branches other than to note that each year there is more abundant evidence that they carry out a greater volume of more effective work.

Many of the chapters have been increasing the scope of their activities and their staffs and facilities.

All possible efforts have been made this year to increase the number of personal contacts between the national staff and the chapters, and experience indicates that this has been mutually beneficial. Plans are being made to increase such contacts in the future.

The Executive Committee has authorized the holding of a meeting to be attended by chapter and national staffs if the chapters desire at which they can concentrate exclusively on problems of carrying out the various phases of the association's program. The national association has received cordial and invaluable cooperation from chapters this year.

New Chapters. New chapters which have been added since the last convention are West Texas Chapter, Abilene; Evansville Chapter, Indiana; Mississippi Gulf Coast Chapter, Gulfport; North Mississippi Chapter, Meridian; Contractors Association of Philadelphia and Eastern Pennsylvania, Philadelphia; Wyoming Contractors Association, Laramie.

There are now 122 chapters and branches in every state and Alaska. Additional chapters are expected to be added during 1953.

Secretaries' and Managers' Council. The A.G.C. Secretaries' and Managers' Council has continued to become a more important factor in successful chapter management, and a medium for closer liaison between the national association and the chapters. It holds daylong meetings at Board Meetings and annual conventions.

Service Awards. Service awards will be made to members of chapter and national staffs at this convention. Nominations are made by chapter presidents and national officers for those who are to receive recognition for 10, 20 and 25 years of service in the form of certificates and lapel emblems. Names of those with five years of service will be read.

Chapter Presidents. Each year more active interest in the national association has been taken by presidents of chapters and branches. Again at this convention two breakfasts will be held at which presidents of chapters and the national association can discuss matters of mutual interest. This year vice-presidents also have been invited to attend.

Conclusion

This report has given an account of the principal activities of the A.G.C. during its period of greatest activity.

While the forces of unrest throughout the world are of such a nature that they will require continued heavy national expenditures in the quest for peace, there are the needs and potentials for a dynamic economy at home which provide tremendous opportunities for the construction industry.

During 1952 the construction industry achieved another record volume of activity. The prospects are that in 1953 still another record can be established with potentials for a continued high level of activity for the foreseeable future.

Through the years the A.G.C. has developed its facilities to the point where it has been able to take positive action on practically all major problems which have faced general contractors.

The removal of emergency controls over the industry and a fresh concept of governmental functions by the new Administration provides a great opportunity to the association for constructive action on projects of long-range benefit to its members, to the industry generally, to the government, and to the public.

An astonishing total would be compiled if it were possible to identify the untold millions of dollars which members, the government, others in the industry, and the public have been able to save annually because of the work which the A.G.C. has done—frequently in cooperation with others—in helping to bring about more fair and equitable contract documents, more efficient administrative procedures, improved specifications, more efficient machinery, more efficient methods, and greater understanding and more ethical relationships between the various segments of the industry. The sum would make the funds for maintenance of the association's activities appear insignificant by comparison.

Though most of the association's varied activities are little understood or known by those outside the industry and are not spectacular in character, their combined effect through the years has served to increase public confidence that it does receive full value for its investment in construction, and has served to increase public respect for competent general contractors.

The accomplishments of the past are preparation for greater achievements in the future. Throughout its history the association locally and nationally has been the medium through which the hundreds of men who have been its leaders have taken action for the improvement of conditions in the industry.

Through the association there has been concentrated and accumulated the wisdom and the benefits of the constructive actions of the men who have been officers, directors, chairmen and members of committees, members of chapter or national staffs, or who in other capacities have made contributions to the industry's welfare.

This convention offers members the opportunity for the personal exchange of information with other members of the industry, and to participate in the affairs of the association and make their contributions to the development of its future program.

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Whether used for charging an individual 11S or 16S Mixer, or a pair as shown, a Bin-Batcher is the short cut to profit. Enables you to take the advantages of a central plant right onto any job. Several models. Ask for details.
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In times like these it's just good business to take a second long look when selecting windows for your school buildings.

Cost, of course, is a factor, but the WAY cost is figured is the important thing.

How long will the windows last?

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Those two questions are keys to better buying and here Ceco-Sterling Aluminum Double-Hung Windows win on both counts. Made of ageless aluminum, they give rugged life-time service . . . will outlast any school . . . won't rust, rot, warp, or swell . . . provide the tightest weather seal ever.

When it comes to maintenance Ceco-Sterling Aluminum Windows deliver a plus value. No painting is necessary and cleaning is a mere matter of wiping.

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30.	The Functions of a General Contractor...	.10	.75	6.00
34.	A.G.C. Governing Provisions.....	.10	.50	3.00
35.	A.G.C. Code of Ethical Conduct.....	.10	.50	3.00
36.	Concrete Mixer Standards.....	Single copies—no charge; quantity prices on application.		
36a.	Contractors' Pump Standards.....			
37.	A.I.A. Standard Form of Arbitration Procedure			
38.	Suggested Guide to Bidding Procedure....			

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Metal Seals and Decals: 20% discount for orders of more than 50; 40% discount for orders of 200 or more.

43. A.G.C. SOCIAL SECURITY FORMS

Form SS1: Application for Employment; Form SS2: Employees' History Record; Form SS3: Employees' Employment and Earnings; Form SS4: Payroll. List of prices and styles will be furnished to A.G.C. members on request.

USE THE CONVENIENT COUPON TO PLACE YOUR ORDER

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43. Price List and Samples ☐

Price List and Styles of Emblem ☐

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Make Checks payable to CONSTRUCTION FOUNDATION, A.G.C., Munsey Building, Washington 4, D. C.

Gentlemen: Enclosed find check for $..... for which please send materials as ordered by number herewith.

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Apr. 1953

"High Flying" Contractor

R. T. Amis, Jr., a "high flying" highway, heavy and railroad contractor from Oklahoma City, who uses airplanes for transportation in construction operations over the sprawling Southwest, was recently elected chairman of the utility airplane council of the Aircraft Industries Association for 1953.

Mr. Amis, co-owner of the Amis Construction Co., A.G.C., was also elected to the board of governors of the Aircraft Industry Association. Also president of the Aero Design and Engineering Co., of Oklahoma City, he succeeded C. F. B. Roth, president of the Air Cooled Motors, Inc., of Syracuse.

The Amis firm does extensive highway and heavy work in this country and Mexico and uses airplanes as a tool of business in its construction projects.

In 1950 Mr. Amis became head of the Aero Design and Engineering Co., which manufactures the Commander, an executive type, twin-engined airplane.

His aviation interests go even deeper for Mr. Amis is secretary of the Oklahoma Aviation Commission and is president of the Oklahoma City Aviation Club.

Public Improvements Manual

The Kansas Contractors Association has published a comprehensive *Manual for Public Improvements in Kansas* which it has distributed without charge to members, consulting engineers, and city and county attorneys, engineers, clerks and managers.

The purpose of the manual is "to place in a handy volume the Kansas statutes most commonly used and of most general application to the initiation, construction and financing of public improvements other than public buildings." Including a comprehensive index the book contains 289 pages.

In general, the statutes compiled in the book relate to roads, streets, sewer systems and plants, gas and electric plants, waterworks, flood control projects, sidewalks, airports, parking stations and others. Where necessary there are comments and explanations of the statutes and citations of court cases.

After each session of the legislature new pages of the laws amended or repealed and new laws passed will be printed in loose pages to replace changed pages.

The inside and outside back covers outline reasons why it is to the advantage of the public agency to use experienced Kansas A.G.C. members. The book was compiled by Clause I. Depew. C. E. Maxwell is president of the association and J. W. Ballard is manager.

New Houston Chapter officers: Left to right, front row, are Vice President Dunbar N. Chambers, President Demmie H. Cox, and Treasurer D. F. Van Cleve. Standing are Directors Harold Van Buskirk, Fred Fisher, H. F. Ulrich and Jos. W. Baxter. The chapter plans to build new offices this year.

Cox Elected President of Houston Chapter

• Head of Affiliated Unit; Duddlesten Re-elected to 17th Term

» THE ANNUAL election of officers and directors of the Houston Chapter, A.G.C., was held March 11 in Houston with Demmie H. Cox elected president to succeed Fred Fisher of the Fisher Construction Co.

Dunbar N. Chambers of Farnsworth & Chambers Co., Inc., was elected vice president and D. F. Van Cleve, owner of the Van Cleve Construction Co., was elected treasurer. Loy W. Duddlesten was re-elected executive secretary for the 17th consecutive year.

Both Mr. Cox and Mr. Van Cleve were re-elected to succeed themselves on the board, and H. F. (Red) Ulrich of the Tellepsen Construction Co., was elected a director to succeed Carl A. Schneider of the Schneider Construction Co. Hold-over directors from last year include Messrs. Chambers, Fisher, Harold Van Buskirk and Joseph W. Baxter.

Mr. Cox, the new president, is Houston manager of the Texas Gulf Construction Co. and a veteran contractor in the Texas Gulf Coast area. Before he took his present job, he was with the Southwestern Construction Co. Mr. Cox is 51 years old and the commanding officer of the 949 Engineer Aviation Group, reserve unit in the Army Affiliation Program, one of the two such units sponsored by the chapter.

The Houston Chapter has a membership of 91 general contractors and 620 associate members including subcontractors, material suppliers, building specialty firms, and insurance and bonding companies.

In addition to the present building it owns, valued at $130,000, the chapter recently purchased 100,000 square feet of improved property near the present location. It plans to construct on this site an office building to house all segments of the construction industry in the Houston area. Preliminary plans for the proposed building are in progress and the chapter is expected to get construction underway by fall. The building reportedly will be of steel frame, masonry type and seven to 10 stories high.

Texas Chapters Consider State Convention

• Council Opposes T-H Law Amendments Lessening State Powers

» A.G.C. members in Texas, over 560 strong, are currently being asked their views, for or against, a proposed annual state-wide convention to be held at suitable future dates.

The closest thing the state has to a chapters' convention is the Texas Chapters Executives Council which meets quarterly to discuss construction problems and help formulate state-wide policy for the 16 chapters.

At a recent winter meeting of the council, in College Station, Feb. 22-23, Chairman Fred Heldenfels, Jr., of Corpus Christi, appointed a committee of five to study the feasibility of holding the annual convention. Fred Fisher, president of the Houston Chapter, was named chairman of the committee, and set about getting chapter secretaries to poll their respective memberships on the question. If such a convention is initiated, vital information on labor matters, legislative problems, market development and construction costs will be dispensed on a broader base, members reported.

Mr. Fisher's committee will report on its findings at the spring meeting of the council in Beaumont next month.

At the February meeting, the council also went on record opposing any nation-wide or industry-wide wage agreements and amendments to the Taft-Hartley Law "which would impair state legislation in the labor field." The group also opposed the "arbitrary and inflationary" policies of the Davis-Bacon Section of the Labor Department.

The latter resolution called for amendment of the act to place the authority to determine wages in federal construction in the hands of the federal agency awarding the contract. Such authority now lies with the Labor Department.

On the subject of accident prevention chapter representatives reported that more interest is being displayed by members. Julian Capers, manager, Dallas Chapter, told the meeting that his chapter had won first place in the national A.G.C. safety activity contest for its division of under 50 members. He did so by getting 100% of his members to make safety reports to the national office.

Other members named to the convention committee besides Mr. Fisher include R. W. McKinney, president of the Texas Highway Branch; Cyril W. Cox of the South Texas Chapter; J. R. Murphy, president of the Fort Worth Chapter; Frank Cannon, president of the West Texas Chapter; and Charles Meers of the Dallas Chapter.

Texas A.&M. Student Chapter, which is sponsored by Houston Building Chapter, was host to the council meeting.

New officers of the Colorado Contractors Association are (left to right): Jack Harrison, second vice president; C. L. Hubner, president; Walter Schmidt, first vice president; and Edwin W. Vandervort, secretary-treasurer.

Colorado Chapter Commends A. S. Horner

• Cited for "Constructive Work" as A.G.C. President Last Year

» COLORADO Contractors Association in annual meeting Jan. 30-31 formally commended Arthur S. Horner, a member, "for the time and effort (he) put forth in furthering the interests of the construction industry" as the 1952 president of The Associated General Contractors of America.

The resolution also cited Mr. Horner for the "constructive work" accomplished by the A.G.C. during his term in office and for giving prestige to the local chapter by serving as national president of the association.

In other business, C. L. Hubner, C. L. Hubner Co., Denver, was elected chapter president for the coming year. He succeeds Dan G. Bell of the Peter Kiewit Sons' Co., who became a director of the chapter.

Other officers elected include Walter Schmidt, Schmidt Construction Co., Grand Junction, 1st vice president; and John Harrison, Harrison Construction Co., 2nd vice president, and Edwin W. Vandervort, Northwestern Engineering Co., secretary-treasurer, both of Denver.

Besides Mr. Bell the following directors were elected for 1953: Clarence Brown of Pueblo; Carl V. Hill of Greeley; Stanley L. Larson, R. J. Lawrence, and Hoyle Lowdermilk, all of Denver; and J. H. Monaghan of Derby.

Special guests of the convention included Governor Dan Thornton, Denver Mayor J. Quigg Newton, and H. W. Richardson, editor of the magazine *Construction Methods*.

Earl W. Devalon continues as managing director of the chapter.

Tacoma Meet Elects Officers

L. B. Macdonald, of the Macdonald Building Co., was elected president of the Tacoma Chapter of the A.G.C. at the group's annual meeting Feb. 10. As vice president in 1952, he succeeded J. A. Harrison, Harrison Brothers Co., who automatically became a director.

Elected vice president for 1953 was P. F. Stevens, of Strong & Macdonald, Inc. R. H. Hartman, of the Standard Construction Co., succeeded Mr. Stevens as treasurer for the year. C. W. Todd remains as chapter secretary-manager.

New building division members

elected to the board of directors include T. W. Anderson, of Tacoma Construction & Engineering Co., Robert Earley, of Roy T. Earley Co., and W. E. Goettling of E. Goettling & Son. George Warter, of Warter Construction Co., and J. W. Purvis, of Construction Engineers & Contractors, were re-elected to the board.

All of the highway division board members were re-elected. They are J. D. Shotwell, J. A. Woodworth, A. S. Macdonald, Lige Dickson and George Mason.

The Tacoma Chapter is made up of some 50 general contractors and 150 associate members.

So. Fla. Retains Top Officers

The South Florida Chapter of the A.G.C. re-elected President M. R. Harrison, Jr., and Vice President James Albert to continue in office for 1953 at the group's annual meeting Jan. 27 in Miami.

C. Frank Wheeler, Miami builder, was elected secretary-treasurer, replacing George Preston, Deigaard & Preston Builders, Coral Gables. Messrs. Harrison and Albert are Miami builders, heading companies bearing their names. Paul H. Hinds remains as executive manager of the chapter.

Newly-elected directors include Edward M. Flemming, L. M. Hamilton, Harold E. Kee, Frank J. Rooney and W. J. Troup.

Miss. Building Chapter Meets

Associated Building Contractors of Mississippi, an A.G.C. chapter, recently elected officers for 1953 and opened a plan room in Jackson.

New officers named at the Annual Meeting, include Wallis I. Schutt, of the M. T. Reed Construction Co., president; L. A. Harvey, vice president; and W. W. Howie, of the Howie Construction Co., chapter president last year, new secretary-treasurer. All are from Jackson.

The executive committee of the chapter appointed Kirk Jeffreys, also of the city, to be secretary-manager of the organization.

Mr. Jeffreys will have his offices in the newly-opened plan room on the 2nd floor of 600 W. Monument St., Jackson. Associate members including subcontractors and materials suppliers, will have access to the room.

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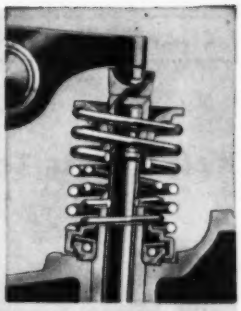

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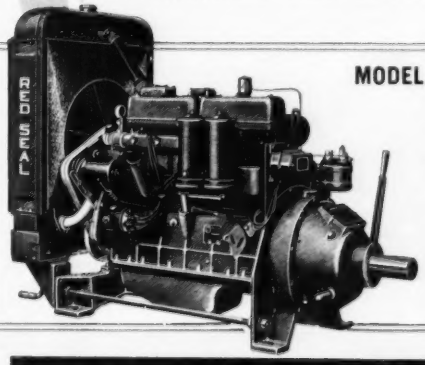

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Volpe Gets Top Public Works Post in Mass.

• Was Former President of State Chapter, Held Committee Posts

» JOHN A. VOLPE, A.G.C. contractor from Malden, Mass., was recently appointed commissioner of public works in his state. Mr. Volpe was president of the A.G.C. of Massachusetts in 1948 and has held many committee posts in the national association.

Mr. Volpe

His appointment to the post came Feb. 26, following the resignation of William F. Callahan, and he was confirmed immediately by the state's executive council under suspension of the rules.

Mr. Volpe was sworn in by Gov. Christian A. Herter on the same day and began his new duties at once. He declared that the governor wants his office to carry on the accelerated highway construction program and that he would discharge such duties "with the utmost dispatch."

From 1948 through 1951 Mr. Volpe was on the Membership Committee of the A.G.C., serving as vice chairman in 1949. At different times during these years he was on the Finance, Legislative and Labor Committees, also. Last year he was on the Finance and Labor Committees.

His address on accident prevention, "One Hundred Ways to Save a Buck," delivered to the construction section of the National Safety Council meeting in 1951, has received wide attention among A.G.C. contractors.

An unsuccessful candidate for lieutenant governor of the state last summer, he has long been active in state Republican party affairs. At the time of his appointment he was deputy chairman of the Republican State Committee, but he stated that he would resign to free himself of "political ties." He also announced that his company, which bears his name, would not bid on or accept state jobs while he is in office.

It was rumored weeks ago that Mr. Volpe would succeed Mr. Callahan who planned to become chairman of the Massachusetts Turnpike Authority and devote his efforts to building the new highway.

Portland (Ore.) Chapter Meets

W. Ray Rogers, Rogers Construction Co., was elected president of the Portland Chapter of the A.G.C., succeeding Herb G. Palmberg, a heavy contractor from Astoria.

Mr. Rogers

Harry I. Hamilton, of Eugene, was elected first vice president and Lloyd Babler, of Portland, was elected second vice president. Frank Lyons was re-elected secretary-treasurer and A. H. Harding remains as chapter manager.

During the meeting Mr. Harding reported the chapter's growth saying it has 135 members and 1900 associate members—subcontractors and materials supplymen.

Newly elected directors include Harry A. Dick, Jr., Glen D. Dennis and Mel A. Erland. Hold-over directors from last year are Ivan W. Breunsbach, Donald W. Hall, K. F. Jacobsen, G. E. Kibbe, Henry A. Kickenberg, Jack McDougall, Marshall R. Newport, Mr. Palmberg, Carl A. Schram, Fred H. Slate and Porter W. Yett, Sr., as well as District Directors Ray H. Northcutt and J. R. Wininger.

Mr. Hamilton

Mr. Babler

"Personal Interest" in Legislation Needed

• Express Views to Law-Making Bodies, Chapter Tells Members

» A NOTE for "greater personal interest" in national and state legislation was sounded before the annual meeting of the Central California Chapter of the A.G.C., January 30, in San Francisco.

Stating that Congress and the California state legislature are now in session, the chapter urged members to give serious consideration to proposed bills and express their views to the national and state law-making bodies.

In his annual report, Retiring President Frank F. Burrows, Burlingame, spoke on activities within the industry for 1952. He indicated prospects for a continued high volume or public works, with an increase in private construction. As for labor relations last year, he said that the chapter carried out a "strenuous program" and he thanked members for their efforts.

Treasurer Burt O. Summers, in his report, told the meeting that the chapter is financially sound and had increased its surplus for the year.

Vice President Melvin F. Gautier, in reviewing membership activities, reported a slight increase in members last year and urged older members to increase membership work.

Secretary-Manager Frank G. Corker reported on chapter staff work, the American Institute of Architects-A.G.C. Joint Committee meetings, Structural Engineers-A.G.C. Joint Committee meetings, accident prevention activities, and work of the local Building Industry Conference Board.

Speakers at the afternoon session included Rex E. Dickey of Remington Arms Co., Clarke E. Wayland of Western Asbestos Co., Herbert R. Westlund of the Argonaut Insurance Exchange, William Utberg of Armstrong Cork Co., Henry J. Degenkolb of Structural Engineers Association of Northern California, Harry B. Corlett of the American Institute of Steel Construction, and Gardiner Johnson, a lawyer.

An amendment to the chapter's bylaws was made increasing the number of directors from 9 to 12. The following were elected to the board: O. E. Anderson, Mr. Burrows, Franklin E. Erickson, Melvin F. Gautier, M. J. Heller, A. L. Horstmeyer, Robert McCarthy, George E. McDaniel, Jr., King E. Parker, Sr., C. Norman Peterson, Curtis E. Smith, Jr., and John R. Winblad.

At the first meeting of the board of directors the following officers were elected for 1953: Mr. Gautier, president; Mr. Parker, vice president, and Mr. Burrows, treasurer. Mr. Corker remains as secretary-manager.

Directors and Advisory Board members of Michigan Chapter at annual meeting included (left to right): Karl Foster, Harry Conrad, Henry Reniger, Curt Bottum, Morse Heineman, Ralph MacMullan, Max Pearse, Dan Kimball, Ralph Dunn, Peter Elzinga, and Walter Love.

Mich. Chapter Elects Foster

The Michigan Chapter of The Associated General Contractors of America, in annual meeting, elected Karl B. Foster, Flint general contractor, to be president of the group for 1953. He succeeds Ralph O. Dunn, Strom Construction Co., of Grand Rapids.

Other officers installed at the meeting Feb. 19 were Morse Heineman, J. R. Heineman & Sons, Saginaw, vice president; Henry A. Reniger, Reniger Construction Co., Lansing, re-elected treasurer; and George W. Combs, of Lansing, as secretary-manager.

(Continued on next page)

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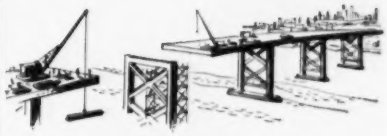

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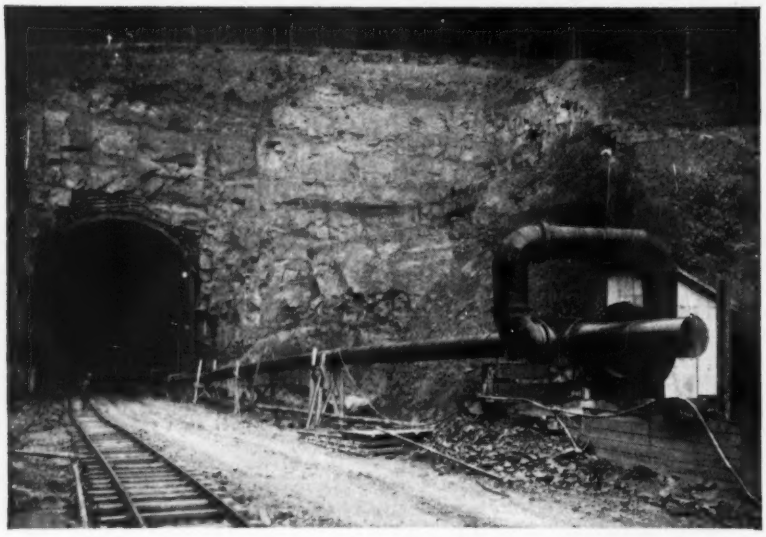

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New directors include Walter Love, of Flint; Peter J. Elzinga, of Holland; Marshall Hungerford, of Jackson; Max Pearse, of Grand Rapids; and Mr. Heineman. Ralph MacMullan, secretary-manager of the Detroit Chapter of the A.G.C., was named to the advisory board.

The meeting held in Lansing Feb. 19 was attended by state government officials, representatives of Michigan State College and the University of Michigan, architects and officials from 17 towns and cities throughout the state.

Mt. Pacific Chapter Meets

Mountain Pacific Chapter of the A.G.C., in annual meeting January 19, elected Don L. Cooney president for 1953. He succeeds T. H. Youell, of Diesel Oil Sales Co., Seattle.

Mr. Cooney

V. R. Scheumann, of Scheumann & Johnson, Seattle highway-heavy contractors, was elected vice president; and Frank Brennan, of Goetz & Brennan, a highway-heavy firm also of Seattle, was elected treasurer. W. H. Landaas remains secretary-manager.

New members of the board of trustees include James Arcorace, J. A. Gauntlett, I. L. Gebhard, James Goodfellow, Hugh Govan, Axel Osberg, John Romano, Jack A. Samuelson, Howard Sievers, Wayne Sutton, A. J. Turnbull, Glen Wasson, Elmer White, C. R. Wilcox, Lindon Meredith and Joseph H. Moss.

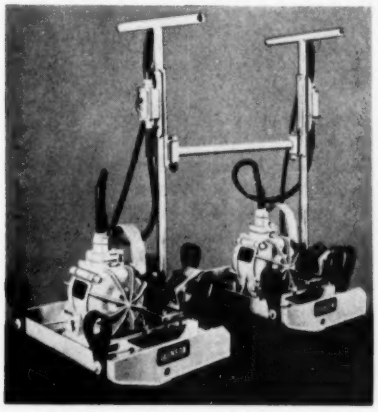
W. H. Werner, 80, Dies

W. H. Werner, 80, Louisiana contractor and first president of the Shreveport Chapter of the A.G.C., died February 6 after a short illness.

Long active in building construction, Mr. Werner erected many of the existing buildings in the Shreveport area. One of his major projects was the large Werner Park subdivision which contained over 500 homes.

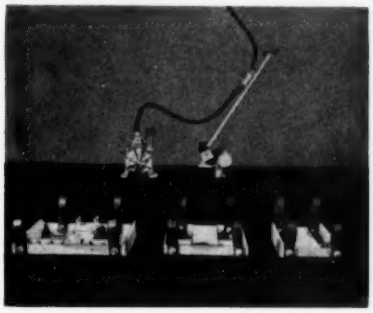
The veteran builder was father of W. Murray Werner, member of the national A.G.C. Executive Committee and chairman of both the Building Contractors' Division and Membership Committee.

Compactors—*Jackson Vibrators, Inc., Ludington, Mich.* Manually guided, self-propelling compactors are now available in teams of 2-abreast and 2-in-line. Two-abreast hook-up has total width of 4'. In 2-in-line versions, operator directs travel by pivoting rear compactor. Attachments for double hook-up are available for owners of 2 or more compactors.



Jackson double-unit compactors

Compactor Bases—*Jackson Vibrators, Inc., Ludington, Mich.* Interchangeable bases for Jackson vibratory compactor are offered in any width from 12" to 24". Bases can be switched in few minutes as there are just 3 component parts involved. Machine is self-propelling, requiring only guidance on part of operator.



Interchangeable bases of Jackson vibratory compactor

Engines—*Cummins Engine Co., Columbus, Ind.* Increase in h.p. ratings of 2 engines, HRBB-600 and HRBBI-600, is announced by Cummins. Power has been increased from 175 to 180 h.p. at 2,000 r.p.m., with no increase in engine weight.

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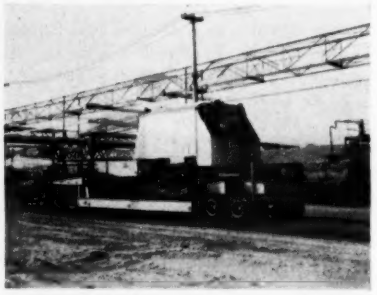
SEE IT IN THIS MAGAZINE
WATCH FOR MAY ISSUE, PAGE 105
THE GORMAN-RUPP COMPANY
MANSFIELD, OHIO

Scrapers—*The Euclid Road Machinery Co., Cleveland 17.* Line of improved scrapers consists of 3 models: 18 cu. yd. twin-power unit, 15.5 cu. yd. unit and new 12-yd. model. They feature "lever action" design used in connection with simplified hydraulic system. Levers replace cables and sheaves formerly used to multiply stroke of hydraulic jacks actuating bowl lift, apron lift and roll-out ejector. Jacks for bowl-lift and apron-lift are mounted vertically and have been incorporated in torque tube. Height of scraper is lowered nearly 2′. Components of hydraulic system controlling jacks are grouped together in hydraulic package placed on front of tractor. Pump is mounted internally in hydraulic tank. Two lever action hoists raise bowl to maximum height of 28″. Apron is lifted by hoist and lever connected to apron by 11′ of cable. Apron and ejector can be operated together. Ejector also is operated by lever. Lever has roller acting against ejector to push it forward. Near end of stroke roller rides over cam surface which accelerates action for dumping. All models are available with either Cummins or General Motors engines.

Euclid scraper has "lever action" design

Trailer—*Martin Machine Co., Kewanee, Ill.* Model FO75M "folding gooseneck" trailer unfolds to form its own loading ramp. Winch-equipped truck lifts folding neck after loading. For unloading, trailer "kneels" to allow load to run off under its own power. Trailer has 12′ x 24′ platform, with over-all length of 43′. It rolls on 16 11.00 x 20 12-ply tires mounted on multiple oscillating trunnions. Trailers are available in single and tandem axle models with capacities from 12 to 100 tons.



Martin FO75M "folding gooseneck" trailer

Asphalt Plant—*Barber-Greene Co., Aurora, Ill.* Model 840, 20-35-ton per hour asphalt plant, can now be equipped with gradation control units, providing 3- or 4-bin screening and separation of aggregate after drying. Model 864 gradation unit is of tower type, operating above mixer, receiving aggregate via enclosed bucket elevator from dryer. It is of sectionalized construction. It is normally set up for 3-bin separation, but accessory 4th bin is available for use when required. After separation, sized aggregates are stored in separate

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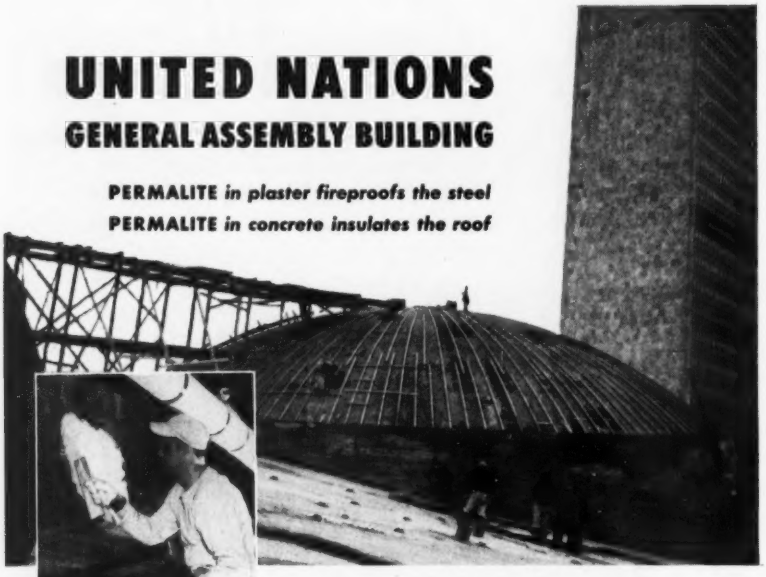

54,000 sq. ft. of plaster with Permalite were used to fireproof steel not only in General Assembly Building but also in two meeting halls. Plaster was applied 1″ thick on expanded metal lath over steel beams, girders, trusses.

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The Whittemore Company, Roslindale 31, Mass.
Virginia Perlite Corp., Hopewell, Virginia

bins and fed directly into mixer by apron feeder which is mechanically interlocked with bitumen pump on mixer. After ratios of various sizes of aggregate and bitumen have been established, feeder and pump are locked. Screens and elevator from dryer are driven by electric motor. Gradation unit feeder is driven by power take-off on mixer. Model 863 gradation unit is mounted on rubber-tired chassis which can be towed behind truck. It is normally equipped to provide 3-bin separation, but can be adapted to 4-bin set-up with auxiliary 4th bin. In operation it is identical with Model 864. Its feeders discharge into enclosed bucket elevator which carries aggregate into mixer. It operates in conjunction with new Model 843 mixer which has same features as Model 840. Among accessory units available for both gradation units are fines feeders at ground level and folding truck-loading conveyors.

Barber-Greene Model 864 gradation control unit

Engines — *Waukesha Motor Co., Waukesha, Wis.* Five diesel engine sizes are being produced as turbocharged units. All engines are heavy-duty, 6-cylinder, 4-stroke cycle units. Model 135-DKBS (4¼ x 5 bore and stroke, 426 cu. in. displacement) develops 185 h.p. at 2,800 r.p.m. Model 148 DKBS (5¼ x 6 bore and stroke, 779 cu. in. displacement) develops 280 h.p. at 2,100 r.p.m. Model WAKDS (6¼ x 6½ bore and stroke, 1,197 cu. in. displacement) develops 352 h.p. at 1,800 r.p.m. Model NKDS (7 x 8¼ bore and stroke, 1,905 cu. in. displacement) develops 380 h.p. at 1,200 r.p.m. Model LRDS (8½ x 8½ bore and stroke, 2,894 cu. in. displacement) develops 570 h.p. at 1,200 r.p.m. Turbocharged ratings represent power gains from 147, 200, 225, 298 and 406 h.p. respectively.

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THE PERFECT PORTABLE COMPRESSOR FOR STANDBY AND PRODUCTION JOBS

★ NEW—75 c.f.m portable air compressor designed for low cost mass production. Completely field tested.

★ ECONOMICAL—Costs less to own, less to operate. Designed for economical operation. More air per dollar investment.

★ ONE-MAN PORTABILITY—Light weight, easy to move. Can be handled by one man, towed behind passenger car.

★ LARGE WORK LOAD—Will handle 45-lb. paving breaker or rock drill —or any two small tools.

★ GOLDEN ANNIVERSARY QUALITY—Built in celebration of OK's 50th anniversary. Quality materials and workmanship throughout.

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Send complete data on OK's new Hornet '75.'

Name.....

Company.....

Address.....

City.....State.....

Power Cranes and Shovels—*Koehring Co., 3026 W. Concordia Ave., Milwaukee 16.* Series of 8 articles discussing use and application of power cranes and shovels, written by E. O. Martinson, vice president in charge of engineering of Koehring, have been published in 32-page booklet under auspices of Power Crane and Shovel Association. Aided by numerous photos, drawings, graphs and tables, capabilities of various excavator and crane attachments are outlined along with prescribed requirements for most efficient operation of these machines. One article discusses "Safety Considerations with Excavators," and another "Excavator Operating Costs."

Steel Sheeting—*Armco Drainage & Metal Products, Inc., Middletown, Ohio.* Illustrated folder describes 2 types of sheeting, flange and interlocking, and shows how these can be used to control soil or water. Installation pictures are included and table of properties and weights.

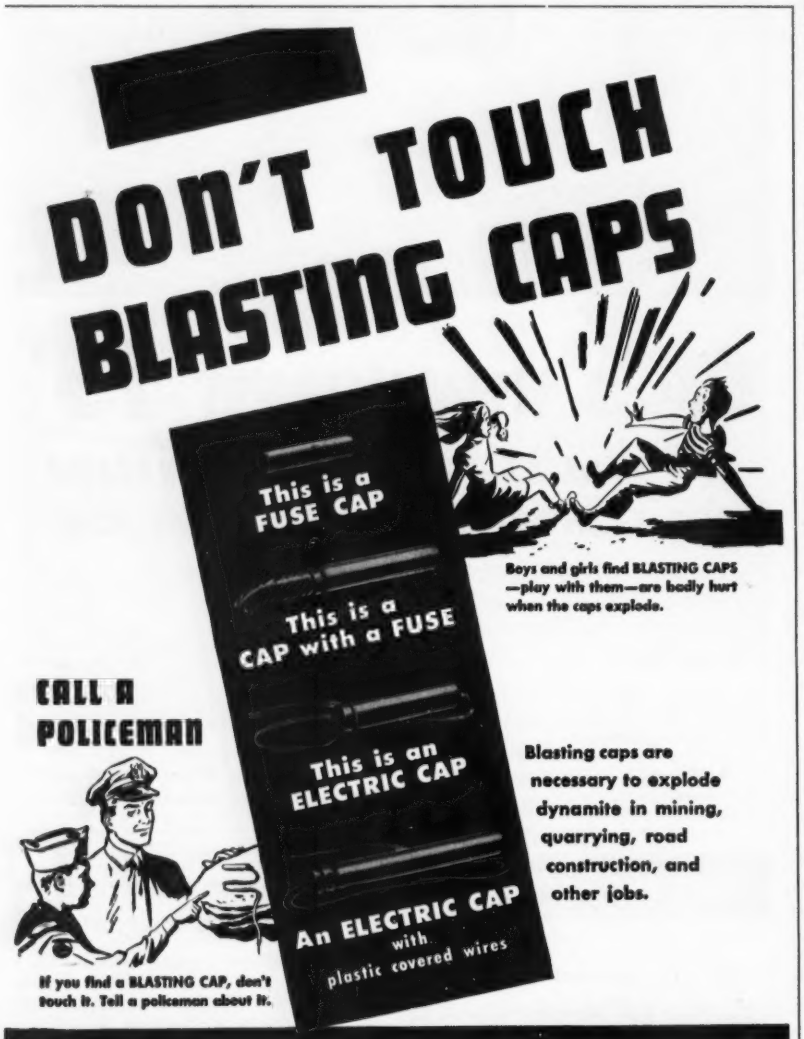
Prestressed Concrete—*Anchor Plastics Co., 36-36 36th St., Long Island City 6, N. Y.* "Aeroflex" plastic tubing for prestressed concrete is described in illustrated folder. It gives specifications and information about bond-preventing split tubing used over wire rope or rods in post-tensioned beams. It shows how tubing is applied and lists some of sizes available.

Torque Converter Drives—*Twin Disc Clutch Co., Rockford, Ill.* Truck-type 3-stage hydraulic torque converter drives are presented in Bulletin 501. It describes application to on-highway and off-highway units and explains advantages of highest torque multiplication for pulling and torque converter braking. It pictures and describes direct drive model DF and clutch type model CF.

Explosives—*Hercules Powder Co., Wilmington, Del.* Hercules explosives and blasting supplies are listed in new booklet which contains tabular summary of properties of high explosives. . . . *Hercomite and Gelamite Explosives* is title of another booklet describing advantages and properties of ammonium nitrate dynamites and semi-gelatins.

Lumber Manufacturers—*West Coast Lumbermen's Assn., 1410 S.W. Morrison St., Portland 5, Oreg. Where to Buy,* 1953 edition, lists West Coast lumber mills, including sawmills, remanufacturers, fabricators, wood pipe and tank manufacturers, glue-laminating plants and wood preservation plants. Detailed information is given on capacities, equipment and special services available, species and lumber items manufactured.

Wire Rope Sling Fitting—*Electroline Co., 4121 S. LaSalle St., Chicago 9.* Booklet shows typical applications of new wire rope choker sling fitting, on lumber, I-beams, rods, heavy pipe and others. Optional locking shoe device, which keeps non-rigid loads tightly bound, is pictured. Drawings explain how fitting works. Cut-away section shows socket arrangement.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This is an ELECTRIC CAP
An ELECTRIC CAP with plastic covered wires
Boys and girls find BLASTING CAPS —play with them—are badly hurt when the caps explode.
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If you find a BLASTING CAP, don't touch it. Tell a policeman about it.
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250 East 43rd St. New York 17, N. Y.

NEW LITERATURE

Crushers, Gravel Plants—*Diamond Iron Works, Inc., 1748 N. 2d St., Minneapolis 11.* Facts and specifications on 11 sizes of jaw crushers are given in Bulletin 600. Cut-away views of crushers and several charts are included. Specifications on new 100 series of 3 portable single-pass gravel plants are given in Bulletin 1,000. Model 124 plant is illustrated.

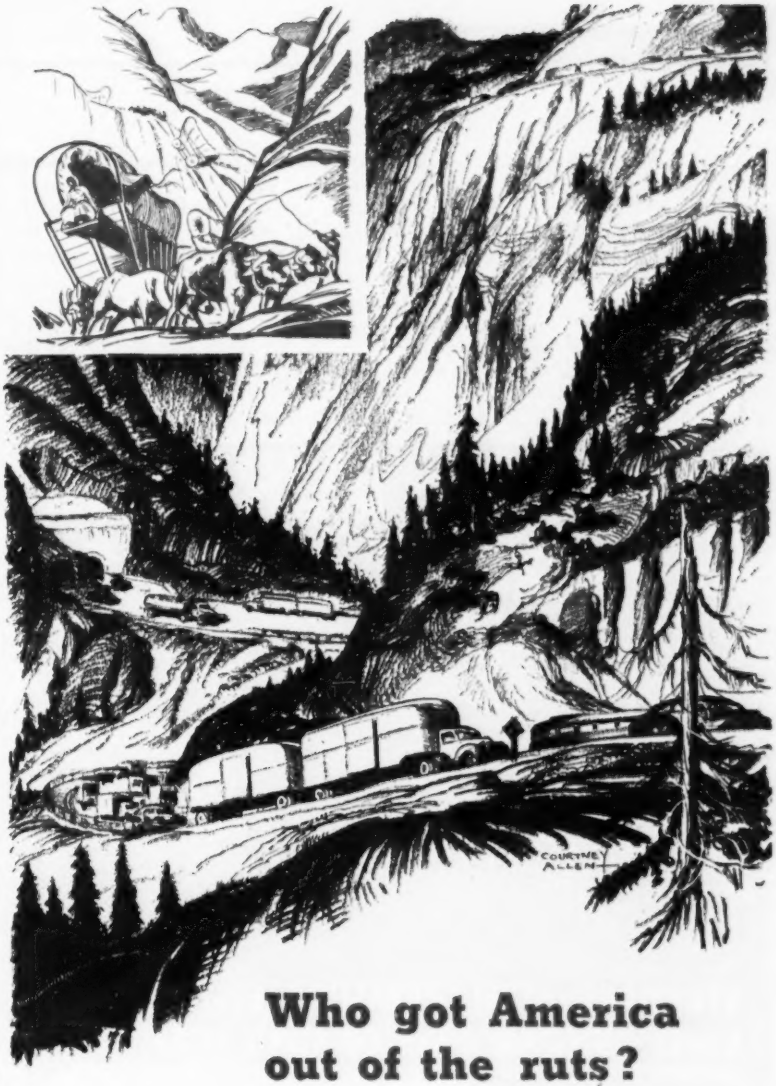
Torque Converter—*Detroit Diesel Engine Division, General Motors Corp., 13400 W. Outer Drive, Detroit 28.* Folder describes torque converter, now integral part of number of GM diesel engine models. It is illustrated with cut-away drawings, curves showing h.p. characteristics of engines so equipped and photos of torque converter units at work in typical installations. Operating principles of unit are explained.

Graders—*W. A. Riddell Corp., Bucyrus, Ohio.* Catalog covers design, construction and performance features of "Warco" 4D series motor graders. Action pictures show grader at work on variety of jobs. Text, photos and diagrams show such features as full rotating saddle and extra high front-end clearance.

Equipment Maintenance—*The Euclid Road Machinery Co., Cleveland 17.* Mantenance program for Euclid earthmoving equipment is described in 20-page booklet, *Euclid's Guide to Preventive Maintenance.* It gives detailed outline of all points that should be checked at 100, 500, 1,000, 2,000 and 4,000 hours of operation. Forms necessary for installing and operating program are illustrated along with maintenance check sheets. It provides record of repair costs, fuel and oil consumption and equipment availability.

Grader Attachments—*Caterpillar Tractor Co., Peoria 8, Ill.* Complete listing of 20 attachments for Caterpillar motor graders is published in booklet (Form 30663). Pictures and discussions explain uses of attachments.

Diesel Engines—Caterpillar booklet, Form 30601, presents photos of various pieces of construction equipment powered by Caterpillar diesel engines. Chart shows h.p. ratings and k.w. ratings of all Caterpillar engines and electric sets and back cover lists some of manufacturers whose machines can be fitted with Caterpillar engines.



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For the pioneers, cross-country travel was back-breaking, slow and laborious. Today, travelers and truckers, agricultural and industrial products, roll easily over thousands of miles of arterial highways. The outstanding building ingenuity and tremendous drive of America's contractors have smoothed the way across rugged mountain barriers, plains and deserts.

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AFFILIATED COMPANIES: ÆTNA LIFE INSURANCE COMPANY
AUTOMOBILE INSURANCE COMPANY • STANDARD FIRE INSURANCE COMPANY
HARTFORD 15 CONNECTICUT

A. W. Lehman, advertising manager of THE EUCLID ROAD MACHINERY Co. for the past 12 years, has left Euclid to become vice president of Richard T. Brandt, Inc., recently appointed to handle Euclid advertising.

F. Dier Tincknell has been elected treasurer of CHAIN BELT Co., succeeding George M. Dyke, who has retired after 30 years' service.

Byron L. Foster has been elected president of L. B. FOSTER Co. He succeeds Lee B. Foster, who founded the firm half a century ago and who now becomes chairman of the board of directors.

Harold Wahl has been appointed chief development engineer of MARTIN MACHINE Co. He comes to Martin after 17 years with Hyster Co.

SEAL the SURFACE to PROTECT the BASE

STANDARD STEEL PRESSURE DISTRIBUTOR GIVES UNIFORM CURB-TO-CURB SURFACING

Uniform Pressure and Temperature Along the Entire Spray Bar Assures Accurate Application and Proper Penetration of Material.

Proper surfacing is the solution to withstanding winter freezes. Water that penetrates to sub-base causes heavy damage year after year to roads not correctly and uniformly surfaced from curb to curb. With the Standard Steel Model 424 Distributor there's rarely a bad spot in a mile of coating. Faster operation — no delays due to tinkering, dismantling and cleaning spray bar, or warm-up time. For primary construction, this equipment far excels all competitive makes. Let us give you the facts on "Competitive Tests".

WRITE FOR CATALOG 424

OTHER PRODUCTS

Maintenance Distributors, Tar Kettles, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Street Flushers, Construction Brooms.

Built to the Highest Standard PD-2

Standard Steel Works NORTH KANSAS CITY, MO.

Fred B. Shew has been named sales manager of the Bucket Department of THE WELLMAN ENGINEERING Co.

Richard K. McConkey has been appointed assistant general manager of the Industrial Division of THE TIMKEN ROLLER BEARING Co. He succeeds the late Melvin H. Kuhl.

The corporate name of INDEPENDENT PNEUMATIC TOOL Co. was changed to THOR POWER TOOL Co. on March 17. The trade name "Thor" has been used as identification of all of firm's power tools since 1893.

R. B. Warren has been named manager of Industrial Products Departments, GOODYEAR TIRE & RUBBER Co.

ALLIS-CHALMERS industrial tractor dealers now offer full line of pull-type 4-wheel scrapers. The line includes 7 models with struck capacities from 2 to 18 cu. yd. Line was made available through integration of 4 Allis-Chalmers models, formerly manufactured by LaPlante-Choate, with 3 made by Gar Wood.

JOSEPH T. RYERSON & SON, INC., announce that construction has begun on a new and larger steel service plant in Milwaukee. The new plant will have approximately 166,000 sq. ft. of floor space, about 3 times the present plant capacity.

G. A. Tamblyn has been appointed sales manager of THE FRANK G. HOUGH Co.

Walter J. Kallmeyer has been appointed chief engineer of the STANDARD STEEL CORP. He was formerly works manager of BLAW-KNOX Co.

All of BARCO MANUFACTURING Co.'s manufacturing and business operations are being transferred to Barrington, Ill., where Barco has erected a new 103,000-sq. ft. plant. Barco has been located in Chicago 43 years.

K. L. Fitts has been appointed manager of off-highway truck sales for MACK MOTOR TRUCK CORP. He succeeds P. J. Fleming who recently retired.

G. J. Casey has been reelected president of the Metal Lath Manufacturers Association. He is metal lath sales manager for the TRUSCON STEEL DIVISION OF REPUBLIC STEEL CORP.

Manufacturers' addresses are listed on page 110

Aggregate (Light-Weight)
Great Lakes Carbon Corp.

Air Entraining Agents
A. C. Horn Co.

Asphalt Plants (Portable)
Barber-Greene Co.
Iowa Mfg. Co.
Standard Steel Works
White Mfg. Co.

Backfillers
Bucyrus-Erie Co.
Cleveland Trencher Co.
Gradall Division
Harnischfeger Corp.
Parsons Co.
Unit Crane and Shovel Corp.

Batchers
Blaw-Knox Division
Butler Bin Co.
Construction Machinery Co.
Heltzel Steel Form & Iron Co.
C. S. Johnson Co.

Bearings (Anti-Friction, Tapered Roller)
Hyatt Bearings Division
Timken Roller Bearing Co.

Bins
Blaw-Knox Division
L. Burmeister Co.
Butler Bin Co.
Heltzel Steel Form & Iron Co.
Iowa Mfg. Co.
C. S. Johnson Co.

Bits (Detachable Drill)
Ingersoll-Rand Co.
Timken Roller Bearing Co.

Blasting Accessories
American Cyanamid Co.

Bonding Agent for Concrete
Larsen Products Corp.

Bridges
American Bridge Division
Armco Drainage & Metal Products

Buckets (Clamshell & Dragline)
Blaw-Knox Division
Bucyrus-Erie Co.
Harnischfeger Corp.
C. S. Johnson Co.
Owen Bucket Co.
Wellman Engineering Co.

Buckets (Concrete)
Blaw-Knox Division
Construction Machinery Co.
Heltzel Steel Form & Iron Co.
Owen Bucket Co.

Buildings (Steel)
Allied Structural Steel Cos.
American Bridge Division
Armco Drainage & Metal Products
Macomber, Inc.
Truscon Steel Division

Bulldozers
Baker Manufacturing Co.
Bucyrus-Erie Co.
R. G. LeTourneau, Inc.

Car Pullers
Clyde Iron Works

Cement (Common and Special)
Lone Star Cement Corp.
Marquette Cement Mfg. Co.
Medusa Portland Cement Co.
Universal Atlas Cement Co.

Cement (White)
Medusa Portland Cement Co.
Trinity White, General Portland Cement Co.
Universal Atlas Cement Co.

Clamps (Hose)
Dixon Valve & Coupling Co.

Compressors
Allis-Chalmers Co.
Ingersoll-Rand Co.
LeRoi Co.
O.K. Clutch & Machinery Co.

Concrete Curing Material
A. C. Horn Co.

Concrete Mixers, Pavers, Tampers
Chain Belt Co.
Construction Machinery Co.
Foote Co.
Jaeger Machine Co.
Knickerbocker Co.
Koehring Co.
Kwik-Mix Co.
T. L. Smith Co.
Worthington Corp.

Concrete Vibrators
Concrete Surfacing Machinery Co.
Electric Tamper & Equipment Co.
Ingersoll-Rand Co.
Master Vibrator Co.
Vibro-Plus Products, Inc.
White Mfg. Co.

Conveying Machinery
Barber-Greene Co.
Chain Belt Co.
Iowa Mfg. Co.
Smith Engineering Works

Crane Safety Alarm
Electro-Alarm Safety Devices

Cranes
Austin-Western Co.
Bucyrus-Erie Co.
Cleveland Trencher Co.
Clyde Iron Works
Harnischfeger Corp.
Koehring Co.
R. G. LeTourneau, Inc.
Michigan Power Shovel Co.
Northwest Engineering Co.
Thew Shovel Co.
Unit Crane and Shovel Corp.

Crushing Machinery
Allis-Chalmers Co.
Austin-Western Co.
Iowa Mfg. Co.
Smith Engineering Works

Culverts
Albert Pipe Supply Co.
Armco Drainage & Metal Products

Cups (Paper Drinking)
United States Envelope Co.

Cutters (Abrasive)
Wodack Electric Tool Corp.

Decking (Roof Steel & Aluminum)
Macomber, Inc.

Derricks
Clyde Iron Works

Doors (Metal, Wood)
Ceco Steel Products Corp.
Kinnear Mfg. Co.
R. C. Mahon Co.
Truscon Steel Division

Dredging Machinery
Bucyrus-Erie Co.
Harnischfeger Corp.
Northwest Engineering Co.

Drills & Drilling Machinery
Bucyrus-Erie Co.
Buda Co.
Ingersoll-Rand Co.
Timken Roller Bearing Co.

Drills (Electric)
Wodack Electric Tool Corp.

Drinking Water Dispensers
United States Envelope Co.

Elevators (Material)
Chain Belt Co.
Iowa Mfg. Co.
Smith Engineering Works

Engines
Allis-Chalmers Tractor Div.
American Hoist & Derrick Co.
Buda Co.
Caterpillar Tractor Co.
Continental Motors Corp.
Cummins Engine Co.
Detroit Diesel Engine Division
Harnischfeger Corp.
Ingersoll-Rand Co.
International Harvester Co.
LeRoi Co.
Wisconsin Motor Corp.

Estimating Methods
Roche Estimating Methods

Expansion Joints
Laclede Steel Co.

Explosives
American Cyanamid Co.

Financing
C.I.T. Corp.

Finishing Machines (Bituminous)
Barber-Greene Co.
Blaw-Knox Division

Finishing Machines (Concrete)
Blaw-Knox Division

Flooring
Truscon Steel Division

Forms (Concrete) and Accessories
Blaw-Knox Division
Economy Forms Corp.
Heltzel Steel Form & Iron Co.
A. C. Horn Co.
Joseph T. Ryerson & Son, Inc.
Symons Clamp & Mfg. Co.
Universal Form Clamp Co.

Generating Sets (Electric)
Caterpillar Tractor Co.
Master Vibrator Co.

Graders
J. D. Adams Mfg. Co.
Allis-Chalmers Tractor Div.
Austin-Western Co.
Caterpillar Tractor Co.
Euclid Road Machinery Co.
Galion Iron Works & Mfg. Co.
Gradall Division
Koehring Co.
W. A. Riddell Corp.

Gravel Plants (Portable)
Iowa Mfg. Co.
Smith Engineering Works

Grinders (Electric)
Wodack Electric Tool Corp.

Hammers (Electric)
Master Vibrator Co.
Wodack Electric Tool Corp.

Hoists
American Hoist & Derrick Co.
Clyde Iron Works
Construction Machinery Co.
Harnischfeger Corp.
Ingersoll-Rand Co.
McKiernan-Terry Corp.

Hose (Air, Water, Steam, Suction)
United States Rubber Co.

Industrial Financing
C.I.T. Corp.

Insurance (Automobile, Casualty, Compensation, Liability)
Aetna Casualty & Surety Co.
American Casualty Co.
Central Surety & Insurance Corp.
Employers Mutuals of Wausau

Jacks
Buda Co.

Jacks (Scaffold)
Wilson-Albrecht Co.

Joists (Steel)
Ceco Steel Products Corp.
Laclede Steel Co.
Macomber, Inc.

Kettles, Heating (Asphalt & Tar)
Standard Steel Works
White Mfg. Co.

Lighting Plants
LeRoi Co.

Loaders (Portable)
J. D. Adams Mfg. Co.
Barber-Greene Co.

Lubricants
Gulf Oil Corp.
Lubriplate Division

Menders (Hose)
Dixon Valve & Coupling Co.
Ingersoll-Rand Co.

Mixers (Truck)
Blaw-Knox Division
Chain Belt Co.

Mixing Plants
Blaw-Knox Division
L. Burmeister Co.
Butler Bin Co.
Chain Belt Co.
C. S. Johnson Co.

Mortar (Masonry)
Marquette Cement Mfg. Co.

Nipples (Hose)
Dixon Valve & Coupling Co.

Pan Forms (Concrete)
Gateway Erectors, Inc.

Partitions (Steel, Load-Bearing)
Macomber, Inc.

Pile Drivers
American Hoist & Derrick Co.
Austin-Western Co.
Bucyrus-Erie Co.
Harnischfeger Corp.
Ingersoll-Rand Co.
McKiernan-Terry Corp.
Northwest Engineering Co.
Thew Shovel Co.
Vulcan Iron Works

Piling (Steel)
Albert Pipe Supply Co.
Allied Structural Steel Cos.
American Bridge Division
Armco Drainage & Metal Products
Bethlehem Steel Co.
L. B. Foster Co.
Union Metal Manufacturing Co.

Pipe
Albert Pipe Supply Co.
Armco Drainage & Metal Products
L. B. Foster Co.
Laclede Steel Co.
Naylor Pipe Co.

Pumps (Contractors')
Barnes Mfg. Co.
C.H.&E. Mfg. Co.
Carver Pump Co.
Chain Belt Co.
Construction Machinery Co.
Gorman-Rupp Co.
Griffin Wellpoint Corp.
Ingersoll-Rand Co.
Jaeger Machine Co.
Leyman Mfg. Corp.
Marlow Pumps
Novo Engine Co.
Rice Pump & Machine Co.
Sterling Machinery Corp.
Worthington Corp.

Pumps (Jetting)
Gorman-Rupp Co.
Griffin Wellpoint Corp.

Quantity Surveyors
H. A. Sloane Associates

Quarry Plants
Austin-Western Co.
Iowa Mfg. Co.
Smith Engineering Works

Rail
L. B. Foster Co.

Railway Equipment & Track Material
Buda Co.
L. B. Foster Co.
Wisconsin Motor Corp.

Reinforcement Accessories
Economy Forms Corp.
Symons Clamp & Mfg. Co.
Universal Form Clamp Co.

Reinforcing Steel and Mesh
American Bridge Division
Bethlehem Steel Co.
Ceco Steel Products Corp.
Laclede Steel Co.
Joseph T. Ryerson & Son, Inc.
Truscon Steel Division

Rollers
Austin-Western Co.
Baker Manufacturing Co.
Blaw-Knox Division
Bucyrus-Erie Co.
Euclid Road Machinery Co.
Galion Iron Works & Mfg. Co.
R. G. LeTourneau, Inc.
W. A. Riddell Corp.

Roof Deck (Steel)
Allied Structural Steel Cos.
Ceco Steel Products Corp.
R. C. Mahon Co.
Truscon Steel Division

Rope (Wire)
American Hoist & Derrick Co.
L. B. Foster Co.
R. G. LeTourneau, Inc.
Joseph T. Ryerson & Son, Inc.

Safety Devices
Electro-Alarm Safety Devices

Sash (Metal, Wood)
Hope's Windows, Inc.
Truscon Steel Division

Scaffolding (Sectional Steel, Tubular Steel)
Patent Scaffolding Co.
Safway Steel Products, Inc.
Wilson-Albrecht Co.

Scarifiers
J. D. Adams Mfg. Co.
Austin-Western Co.
Baker Manufacturing Co.

Scrapers
Austin-Western Co.
Baker Manufacturing Co.
Bucyrus-Erie Co.

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DEPENDABLE SURVEYS SINCE 1922

Caterpillar Tractor Co.
Euclid Road Machinery Co.
Galion Iron Works & Mfg. Co.
R. G. LeTourneau, Inc.
W. A. Riddell Corp.

Screens (Sand, Gravel & Coal)
Iowa Mfg. Co.
Smith Engineering Works

Shores
Patent Scaffolding Co.
Symons Clamp & Mfg. Co.

Shovels (Power)
American Hoist & Derrick Co.
Austin-Western Co.
Bucyrus-Erie Co.
Butler Bin Co.
Harnischfeger Corp.
Koehring Co.
Michigan Power Shovel Co.
Northwest Engineering Co.
Thew Shovel Co.
Unit Crane and Shovel Corp.

Shutters (Fire, Labeled)
Kinnear Mfg. Co.
R. C. Mahon Co.

Slings (Wire Rope)
American Hoist & Derrick Co.

Spreaders (Bituminous Surface)
Galion Iron Works & Mfg. Co.

Stabilizing Equipment
Harnischfeger Corp.
Iowa Mfg. Co.

Steel (Structural)
Allied Structural Steel Cos.
American Bridge Division
Bethlehem Steel Co.
Flint Steel Corp.
Macomber, Inc.
Joseph T. Ryerson & Son, Inc.
Truscon Steel Division

Surety Bonds
Aetna Casualty & Surety Co.
American Casualty Co.
American Surety Co.
Central Surety & Insurance Corp.
Employers Mutuals of Wausau
Fidelity & Deposit Co.
Fire Association of Philadelphia
Insurance Co. of North America
National Surety Corp.

Swing Stages
Patent Scaffolding Co.
Wilson-Albrecht Co.

Tires
General Tire & Rubber Co.
Goodyear Tire & Rubber Co.
United States Rubber Co.

Tools (Pneumatic, Electric)
Allis-Chalmers Co.
Ingersoll-Rand Co.

Torches (Kerosene)
White Mfg. Co.

Tractors
Allis-Chalmers Tractor Div.
Caterpillar Tractor Co.
International Harvester Co.
Oliver Corp., Industrial Div.

Trailers (Dump & Crawler Wheel)
Euclid Road Machinery Co.
R. G. LeTourneau, Inc.

Trailers (Heavy Equipment)
Martin Machine Co.
Rogers Bros. Corp.

Trenchers
Barber-Greene Co.
Cleveland Trencher Co.
Gradall Division
Harnischfeger Corp.
Michigan Power Shovel Co.
Parsons Co.
Unit Crane and Shovel Corp.

Trestles (Adjustable Steel)
Patent Scaffolding Co.
Safway Steel Products, Inc.

Trucks (Heavy Rear-Dump)
Euclid Road Machinery Co.

Trucks (Motor)
International Harvester Co.

Trusses (Steel)
Macomber, Inc.

Tunnel Liner Plates
Armco Drainage & Metal Products

Valves (Air—Self-Honing)
Dixon Valve & Coupling Co.

Wagons (Dump)
Austin-Western Co.
Caterpillar Tractor Co.
Euclid Road Machinery Co.
R. G. LeTourneau, Inc.

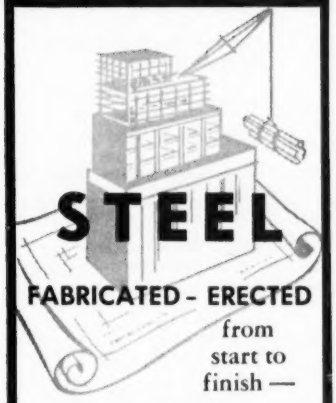
Walls
R. C. Mahon Co.

Washing Plants
Austin-Western Co.
Iowa Mfg. Co.
Smith Engineering Works

Wellpoint Systems
Griffin Wellpoint Corp.

Winches
Clyde Iron Works

FLINT



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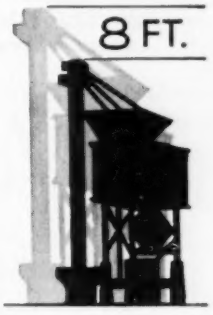

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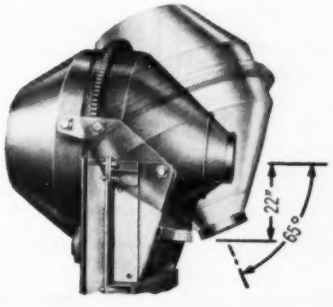

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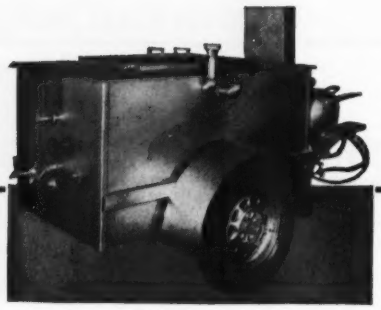

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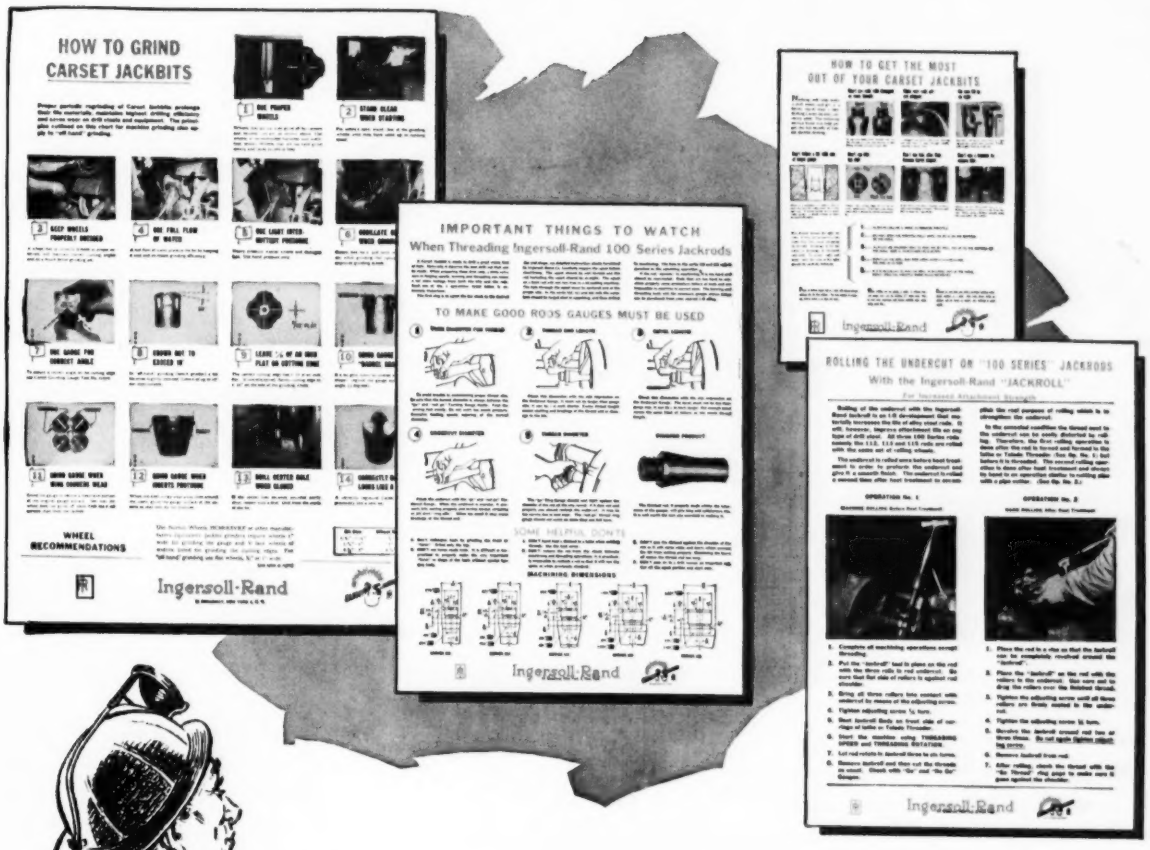

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